A STUDY TO ASSESS THE EFFECTIVENESS OF AEROBIC EXERCISE ON PRIMARY DYSMENORRHOEA AMONG ADOLESCENT GIRLS AT SELECTED COLLEGE, COIMBATORE

By

SINDHUJA. K

A Dissertation submitted to **The Tamil Nadu Dr.M.G.R. Medical University**, Chennai, in partial fulfillment for the requirement of the degree of

Master of Science in Nursing

Branch III Obstetrics and Gynecological Nursing

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CERTIFICATE

Certified that **A STUDY TO ASSESS THE EFFECTIVENESS OF AEROBIC EXERCISE ON PRIMARY DYSMENORRHOEA AMONG ADOLESCENT GIRLS AT SELECTED COLLEGE, COIMBATORE** is a bonafied work of **SINDHUJA. K,** PSG College of Nursing, Coimbatore, and submitted in partial fulfillment of requirement of the degree of Master of Science in Nursing to **The Tamil Nadu Dr. M.G.R Medical University**, Chennai.

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College seal

PSG COLLEGE OF NURSING

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ABSTRACT

A study to assess the effectiveness of aerobic exercise on primary dysmenorrhoea among adolescent girls at selected College, Coimbatore

Background of the study: After menarche many adolescent girls face problems of irregular menstruation, excessive bleeding, and dysmenorrhoea. Of these, dysmenorrhoea is one of the common problem experienced by most of the adolescent girls. Dysmenorrhoea is quite frequent and may affect the daily activities especially during the early years of adolescence. Primary dysmenorrhoea (PD) is one type of painful menstruation. Because of recent concerns about pharmacological therapy, several studies investigated the efficacy of numerous non pharmacological measures for the relief of dysmenorrhoea such as aerobic exercise.

Objective: The main objective of the study was to assess the effectiveness of aerobic exercise on primary dysmenorrhoea among adolescent girls.

Methods: The research design adopted was Pre experimental one group pretest posttest design. The sample size was 40 adolescent girls in PSG College of Nursing. Purposive sampling technique was used in this study. Those who were fulfilled the inclusion criteria were selected for this study. The menstrual symptoms assessment questionnaire was used to assess the degree of dysmenorrhoea. Pretest data were collected during menstruation for 5 days using menstrual symptoms assessment questionnaire. Posttest I and posttest II data were collected on two consecutive menstrual cycles for 5 days. From 7th day of menstruation aerobic exercise was administered 40 minutes/day an alternative days up to 7 weeks for two consecutive menstrual cycles.

Result of the study: Posttest I revealed that among 40 students, more than half of the students 29 (72.5%) was not affected by primary dysmenorrhoea in their daily activities, and posttest II majority of the students 36 (90%) was not affected by primary dysmenorrhoea in their daily activities. Posttest I more than half of the students 27 (67.5%) had no physiological symptoms, and posttest II majority of the students 36 (90%) had no physiological symptoms, Posttest I most of the students 32 (80%) had no psychological symptoms, and posttest II majority of the students 38 (95%) had no psychological symptoms, Posttest I majority of the students 33 (82.5%) had no pain, posttest II most of the students 39 (97.5%) had no pain. Correlation between the menstrual characteristics with menstrual symptoms among adolescent girls. r=0.7 for age at menarche was found to be positive correlation it betokens the early age of attained menarche having more influence on primary dysmenorrhoea symptoms, r=0.87 for characteristics of bleeding was found to be positive correlation it betokens the blood with clots during menstruation having more influence on primary dysmenorrhoea symptoms. There was no correlation in the duration of menstrual cycle (r=0.32) and number of days of menstruation (r=-0.08). There was no significant association between the degree of dysmenorrhoea and selected demographic variables like age, education, type of family, family income and family history of dysmenorrhoea, age of menarche, duration of menstrual cycle, number of days of menstruation, and characteristics of bleeding.

Conclusion: Dysmenorrhoea is a very common problem among adolescent girls and they experience a number of physical, and psychological symptoms associated with it. Aerobic exercise was a one of the effective, inexpensive measure to reduce the primary dysmenorrhoea among adolescent girls. The study concludes that Aerobic exercise as physical activity is significant in reducing the symptoms of primary dysmenorrhoea during menstruation among adolescent girls.

Key words: Aerobic exercise, Adolescent girls, Primary dysmenorrhoea

CHAPTER-I

INTRODUCTION

1.1 Back ground of the study:

"The glad and frivolous puberty mind needs its own peculiar satisfaction to stay alive and healthy"

The female reproductive system is indeed marvelous. Menstruation is a basic female physiological process, capable of affecting the several other metabolisms within the body. Every month, one egg leaves one of the ovaries on its way to the uterus via fallopian tubes. The inner uterine wall known as the endometrium thickens and there is increased blood circulation in the entire reproductive system. Women may face several difficulties during their menstrual flow. In some women the effects are more aggressive than others. And the most worrisome thing is that the symptoms could recur month after month. The biological term for menstrual problems is dysmenorrhoea. **(Linda French., 2007)**

The term dysmenorrhoea comes from the Greek word for difficulty in monthly flow and describes painful menstruation. Dysmenorrhoea is characterized by cramping lower abdominal pain that may radiate to the lower back and upper thighs, commonly associated with nausea, headache, fatigue and diarrhea. It can be classified in to two subtypes. Primary dysmenorrhoea and secondary dysmenorrhoea**. (Annamma Jacob., 2008)**

Dysmenorrhoea is painful cramps originating in the uterus just prior to or during menstruation. It can be primary (i.e. without any organic pathology) or secondary (i.e. associated with a pathological condition, such as endometriosis or ovarian cysts). The pain usually lasts between 8 and 72 hours. **(Marie E., 2010).**

Dysmenorrhoea or painful menstruation is normal, but it can be extremely painful influenced by physical and psychological factors such as stress and the effects of prostaglandins and progesterone hormones. During dysmenorrhoea, the uterine muscle contracted due to an excessive increase in prostaglandin that causes vasospasm of the uterine

arterioles. It can cause ischemia and cramping in the lower abdomen that will stimulate menstrual pain. **(Robert and David., 2004).**

Primary dysmenorrhoea is caused by prostaglandin induced uterine contractions. Primary dysmenorrhoea tends to occur with the onset of ovulatory cycles and usually improves with time, coincides with the onset of menstrual bleeding, and frequently is associated with other prostaglandin-mediated symptoms such as nausea, vomiting, diarrhea, dizziness. The pain is sharp and crampy, and is located in the lower midline. **(Tammy Boone., 2014).**

Secondary dysmenorrhoea means pelvic pain caused by disorder or disease. It most commonly begins in women who are in their late teens or early twenties and progressively worsens. The pain may be long before menses and continues during and even after menses, dyspareunia is also common. Gynecological problems that can cause secondary dysmenorrhoea include pelvic inflammatory disease, leiomyomata, endometriosis, adenomyosis, and intrauterine device use. Menorrhagia is not uncommon. The pain of secondary dysmenorrhoea often occurs in both lower quadrants. When evaluating a client with crampy pelvic pain, one must be sure to consider the possibility of infection or early pregnancy with associated sequale. Pelvic examination will demonstrate uterine or adnexal tenderness and possibly other findings such as pelvic mass, uterosacral nodularity or fixation of the uterus with poor mobility. **(Maryland state family planning program clinical guidelines, 2011).**

1.2 Need for the study:

According to British medical authorities report that degree of dysmenorrhoea in the year of 2000, 80% of the world women have different degree of dysmenorrhoea. According to Med India journal in the year of 2008, pain during menstruation or dysmenorrhoea occurs in 50% of menstrual women and about 10% are incapacitated for 1-3 day each month. In the 1st year after menarche 38% of girls develop dysmenorrhoea. In the second and the third year after menarche 20% experience pain related to menstruation, about 80% of women who developed dysmenorrhoea do so within 3 years of menarche.

There is a huge population of girls out there whose quality of life could be better one to two days a month-that's two to three weeks a year. In the last decade or so, more and more doctors have begun to recognize that dysmenorrhoea isn't just a fancy name for girls who have a tough time dealing with menstrual cramps. Increasingly, it is seen as a medical condition that has a physiological effect on the body. **(Harlow Balen, 2004).**

Adolescence is a period from childhood to adulthood. One of the major physiological changes that take place in adolescent girls is onset of menarche, which is associated with dysmenorrhoea, excessive bleeding and irregular menstruation. Of these dysmenorrhoea is one of the common problem experienced by many adolescent girls. **(Aganoff, 2005)**

Adolescent girls are more likely than older women to have primary dysmenorrhoea because the condition can get better with age. Secondary dysmenorrhoea tends to be less common in adolescents, as onset of causative conditions may not have occurred yet. Estimates suggest that around 25-50% of adult women and about 75% of adolescents experience pain with menstruation, and some 5-20% report severe pain that prevents them from carrying on with their usual activities. **(Zondervan, 2008).**

Menstrual cramps, known as dysmenorrhoea affect 20 to 90% of adolescent girls. Many teenagers with severe cramps suffer for years before they seek treatment because they think painful periods are just part of growing up. It is difficult to determine exactly how prevalent the condition is, because the definition varies so widely. Some consider dysmenorrhoea to be any menstrual pain at all, while others say it is excessive cramping that causes a woman to miss school or work. **(Stenchever A, 2009)**

Adolescence is a transition period from childhood to adulthood and is characterized by a spurt in physical, endocrinal, emotional, and mental growth, with a change from complete dependence to relative independence. The period of adolescence for a girl is a period of physical and psychological preparation for safe motherhood. As the direct reproducers of future generations the health of adolescent girls influences not only their own health but also the health of the future population. Almost a quarter of India's population comprises of girls below 20 years. **(Agarwal, 2010).**

A study done in Sweden showed that more than 50% of all menstruating girls experienced some discomfort. It has also been reported by a senior obstetrician that probably 5-10% of girls in their late teens suffer from severe spasmodic dysmenorrhoea interrupting their education and social life. **(Dawn.C.S, 2011)**

Menstruation is a normal physiological phenomenon for a woman indicating her capability for procreation. However, this normal phenomenon is not an easy one. It is often associated with some degree of sufferings and embarrassment. It is a common observation that every women experiences one or other type of menstrual problems in her lifetime. The prevalence of menstrual disorders has been recorded as high as 87%. **(Komal Gupta, M S, 2013)**

Several studies have shown the prevalence of dysmenorrhoea to vary from 52% to 74%. The prevalence of Pre menstrual syndrome was found to be 63% in one of the study conducted in New Delhi. Dysmenorrhoea and Pre menstrual syndrome are significantly associated with school absenteeism and disruption of social and daily routine activities. School absenteeism varied from 17% to 53% in different studies. Thus, dysmenorrhoea and Pre menstrual syndrome significantly lowered the quality of life in all dimensions in adolescent girls during menstruation. **(Kavita S Konapur, 2014)**

The experience of pain with menstruation is common for 70–91% of teenagers. The prevalence of dysmenorrhoea worldwide ranges 15.8 - 89.5%, with higher prevalence rates reported in the adolescent population. It was reported in 84.2% of the studied girls and 15.8% of them reported no dysmenorrhoea. So, the researchers and healthcare providers should consider primary dysmenorrhoea as a highly prevalent gynecological complaint and intervention studies should give attention on methods of reducing the intensity as well as the prevalence of primary dysmenorrhoea in young female students. **(Zulida Safavi, 2014)**

1.3 Statement of the problem:

A Study to Assess the Effectiveness of Aerobic Exercise on Primary Dysmenorrhoea among Adolescent Girls at Selected College, Coimbatore.

1.4 Objectives:

- To assess the degree of primary dysmenorrhoea among adolescent girls
- To determine the effectiveness of aerobic exercise on primary dysmenorrhoea among adolescent girls
- To correlate the menstrual characteristic with the menstrual symptoms among adolescent girls.
- To associate the degree of primary dysmenorrhoea with selected demographic variables among adolescent girls.

1.5 Assumption:

- Primary dysmenorrhoea is a common menstrual discomfort among adolescent girls.
- Aerobic exercise will be effective in reducing the severity of primary dysmenorrhoea.
- Demographic variables have an influence on primary dysmenorrhoea and related symptoms.

1.6 Hypothesis:

- **H_1** There will be a significant difference in the mean pre-test and mean post-test degree of primary dysmenorrhoea among adolescent girls, after aerobic exercise at 0.05 level of significance.
- **H_2** There will be a significant correlation between the menstrual characteristics with menstrual symptoms among adolescent girls.
- **H_3** There will be a significant association between the degree of primary dysmenorrhoea and selected demographic variables among the adolescent girls, before intervention.

1.7 Operational definition:

Effectiveness: Effectiveness refers to the reduction of primary dysmenorrhoea after the administration of aerobic exercise among adolescent girls as measured by dysmenorrhoea symptoms assessment questionnaire for 5 days of menstruation up to two consecutive menstrual cycles.

Aerobic exercise: Exercises such as walking, stretching exercises including pectoralis stretching, calf and hamstring stretching, triceps stretching, illiopsoas stretching, bicycling, muscle strengthening exercises including shoulder flexors, shoulder external rotator, shoulder abductors, knee flexor, shoulder internal rotator, knee extensor, that is sub-maximal, rhythmic and repetitively by involving the large group of muscles for 40 minutes on alternative days up to two consecutive menstrual cycles among adolescent girls who are having primary dysmenorrhoea.

Primary dysmenorrhoea: Primary dysmenorrhoea is defined as cramping pain in the lower abdomen occurs just before or during menstruation, in the absence of other diseases such as endometriosis among adolescent girls as measured by dysmenorrhoea symptoms assessment tool.

Adolescent girls: Refer to girls between 17-19 years studying II and III year B. SC (N) in PSG College of Nursing, Coimbatore.

1.8 Projected outcome:

Aerobic exercises reduce the degree of primary dysmenorrhoea among adolescent girls and there by improves their health and well-being.

1.9 Conceptual framework:

Modified Wiedenbach's helping art of clinical nursing theory:

The conceptual framework for this study was derived from modified Wiedenbach's helping art of clinical nursing theory (Fawcett, 1997). This study was based on the concept that aerobic exercise helps to reduction of primary dysmenorrhoea among adolescent girls. The investigator adopted the modified Wiedenbach's helping art of clinical nursing theory as

a base for developing the conceptual framework. Ernestine Wiedenbach's proposed a prescriptive theory for nursing, which is described as conceiving of a decide solution and the ways to attain it. It directs action towards an explicit goal. This theory has three factors.

1. Central purpose
2. Prescription
3. Realities

Central purpose: it refers to what the nurse wants to accomplish. It is the overall goal towards which a nurse strives. In this study the main central purpose is to assess the effectiveness of aerobic exercise on primary dysmenorrhoea among adolescent girls.

Realities: it refers to the physical, physiological, emotional and spiritual factors that involves in nursing actions. In this theory there are four realities. They are as follows:

Frame work: It refers to the place in which it is practiced. Here it refers to the study was conducted in seminar hall at PSG College of Nursing.

Agent: One who directs all action towards the goal and has capacities, capabilities, commitment and competence to provide care. In this study agent is the researcher who directs all the action towards the goal.

Recipient: One who is vulnerable and dependent and receive all attention. Here the entire adolescent girls those who are having primary dysmenorrhoea are the recipient of the aerobic exercise.

Means: This refers to the activities or devices used to achieve the goal. In this study it refers to administration of aerobic exercises such as warm up, stretching and strengthening exercises, step up down, and cool down to the adolescent girls having primary dysmenorrhoea.

Goals: It refers to the desired outcome of the action. Reduction in the degree of primary dysmenorrhoea symptoms was considered as the goal of the study.

Wiedenbach's nursing practices consists of identification, ministration and validation.

Identification: It refers to the viewing the individual's unique experiences and perceptions. In this study prevalence of primary dysmenorrhoea was assessed by using demographic data and menstrual profile questionnaire.

Ministration: This step involves provision of required help for the identified need. The aerobic exercise is administered 40 minutes per day in an alternative day up to 7 weeks to the samples.

Validation: It refers to reduce the symptoms of primary dysmenorrhoea through the identification of need and implementation of action. Here it is the post assessment of primary dysmenorrhoea symptoms by using structured questionnaire after administration of aerobic exercise for two consecutive menstrual cycles.

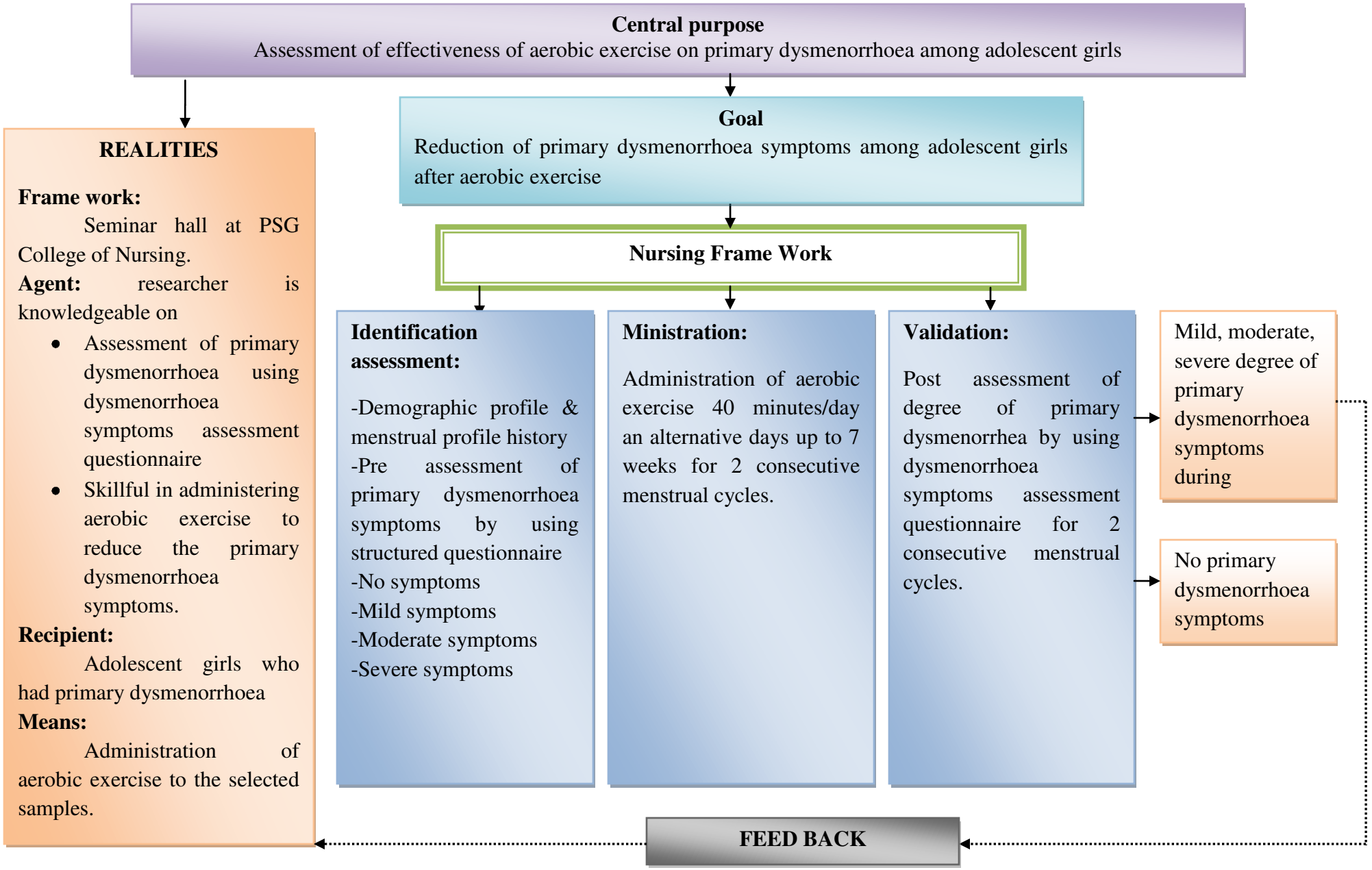

Figure 1.1 Modified Wiedenbach's prescriptive theory to assess the effectiveness of aerobic exercise on primary dysmenorrhoea among adolescent girls.

CHAPTER-II

REVIEW OF LITERATURE

A literature review is a description and analysis of the literature relevant to a particular field or topic. It gives an overview of what has been said, who the key writers are, what are the prevailing theories and hypotheses, what questions are being asked and what methodologies appropriate and useful. **(Burns N., 2007)**

A literature review is the critical analysis of segment of published research studies, reviews of literature, and theoretical articles. A literature review is an evaluation report of studies found in literatures related to selected areas. The review should describe, summarize, evaluate and clarify the literature. It should give a theoretical basis for the research and help to determine the nature of research. A literature review goes beyond the search for information and includes the identification and articulation of relationships between the literatures and field of research. **(Basavanthappa B T., 2009)**

The review of literature for this study is group in the following heading.

A) Studies related to prevalence of dysmenorrhoea
B) Impact of dysmenorrhoea on academic, sports, and social activities.
C) Studies related to aerobic exercise as a management of dysmenorrhoea.

2.1. Studies related to prevalence of dysmenorrhoea:

A study was conducted to examine the prevalence, determinants, impact and treatment practices of dysmenorrhoea, among female adolescent students in secondary schools in urban and rural areas in Mansoura, Egypt. A total 664 number of sample was taken. Data was collected through a self-administered questionnaire. About 75% of the students experienced dysmenorrhoea (mild 55.3%, moderate 30.0%, and severe 14.8%). Most did not seek medical advice although 34.7% treated themselves. Fatigue, headache, backache and dizziness were the commonest associated symptoms. Limitation of activities was more reported by students with severe dysmenorrhoea. **(El-Gilany AH, et al., 2005)**

A cross sectional study was conducted to describe the burden and determinants of dysmenorrhoea: a population-based survey of 2262 women aged between 18-45 years in Goa, India. A total of 2262 women were eligible. More than half reported dysmenorrhoea; moderate to severe dysmenorrhoea was reported by 755 participants. There was a linier association between severity of pain and impact of medication, taking rest and onset of premenstrual pain associated with more severe of pain and impact. The burden of dysmenorrhoea is greater than any other gynecological complaints, and is associated with significant impact, social disadvantage, co-morbidity with other somatic syndrome and reproductive factor are determinants of this complaint**. (M Sahasrabhojanee., 2006)**

A cross-sectional study was conducted to determine the prevalence of dysmenorrhoea among adolescent girls in the Health College giving education at the Dumlupinar University, a public university located in the west of Turkey. The prevalence of dysmenorrhoea in adolescent girls was found to be 79.67%. Most of them, 37.96%, suffered regularly from dysmenorrhoea severity. The three most common symptoms present on both days, that is, day before and first day of menstruation were lethargy and tiredness (first), depression (second), and inability to concentrate in work (third), whereas the ranking of these symptoms on the day after the stoppage of menstruation showed depression as the first common symptoms. Negative correlation had found between dysmenorrhoea and the general health status as measured by the body surface area. **(Jameison D J., 2008)**

A cross-sectional descriptive study was conducted to evaluate the factors influencing the prevalence and severity of dysmenorrhoea, conducted among female medical students age 17-19 years at S. S. Medical College, Madhya Pradesh. A total 107 sample was taken. Verbal multi-dimensional scoring system was used. Participants were given 20 minutes to complete the questionnaire. The prevalence of dysmenorrhoea was 73.83%; approximately 4.67% of subjects had severe dysmenorrhoea. The average duration between two periods and the duration of menstrual flow were 28.34 (+/- s7.54) days and 4.5 (+/- 2.45) days respectively. It was reported 31.67% and 8.68% were frequently missing college & classes respectively. Premenstrual symptom was the second most (60.50%) prevalent disorder and 67.08% reported social withdrawal. Dysmenorrhoea,

pre-menstrual symptom and absenteeism from college are highly prevalent among female medical students. **(Singh A, et al., 2008)**

A study was conducted to determine the prevalence of dysmenorrhoea among 706 female adolescents in a local urban high school at Bangalore. Grades 9 through 12, completed a 31-items questionnaire about the presence, duration, severity, treatment, limitation of dysmenorrhoea, and its impact on academic performance, school attendance, sports and social activities; It showed that among the participant who had a period in the previous 3 months, 85% reported dysmenorrhoea. Of these, 38% reported missing school due to dysmenorrhoea during the 3 month prior to the survey and 33% reported missing individual classes. Activities affected by dysmenorrhoea included class concentration 59%, sports 51%, class participant 50%, socialization 46% homework 35%, test taking skill limitation on social, academic, and sports activities. 36% and grades 29%. Treatment taken for dysmenorrhoea, exercise 15%. Dysmenorrhoea is highly prevalent among adolescents and is related to school absenteeism and limitation on social, academic, and sports activities. **(Banikarim C., 2008)**

A prospective cohort study was conducted to investigate the epidemiology of dysmenorrhoea in 823 women of menstrual age 18-51 years. Information on health care was also collected. Dysmenorrhoea of mean duration 1.75 days; range 1-5 days was reported in 95%. Common associated symptom included headache 10.77 %, back pain 6.92 %, and fatigue 5.38%. No participant with dysmenorrhea visited a physician, while 51.5% of women used self-medication, and 7.7% used complementary/alternative medicine. In conclusion dysmenorrhoea is common among in Japanese women. **(Takahashi O, et al., 2008)**

Study conducted in Egypt on assessment of dysmenorrhoea and menstrual hygiene in some Nursing schools using the verbal multidimensional scoring system have shown that among 160 subjects 94.4% had dysmenorrhoea and among them 49.0% had mild pain, 34.4% moderate and 16.6% of severe pain. The useful measures taken by students were hot bath (100%) hot drinks (43%) and physical activity (66.2%). **(Abd El-Hameed N A., 2011).**

An explorative study was conducted on "the prevalence of dysmenorrhoea among senior high school girls in Perth, Western Australia. The prevalence of dysmenorrhoea was 76.1% (n=643); of these, 26.6% described their menstrual pain as mild, 32.0% as moderate and 41.4% as severe. Among adolescents with dysmenorrhoea 92.1% (n=592) reported the duration of their menstrual cramps as 48 hours or less. Dysmenorrhoea was found to be significantly ($p<0.05\%$) associated with older age, earlier menarche, longer cycle length and bleed length, heavy bleeding and irregular cycle. Among participants reporting cramps during menstruation, 70.0% indicated nervousness, 38.9% fatigue, 59.4% back pain, 42.9% head ache, 53.8% irritability, 39.3% dizziness, and 38.3% depression. These symptoms were significantly more frequent among adolescents suffering from dysmenorrhoea than their counterparts reporting no dysmenorrhoea. **(Eman M.Mohamed, et al., 2012).**

The cross-sectional study was conducted by the department of obstetrics and gynecology, Index Medical College, Hospital and Research Centre Indore, Madhya Pradesh, India for a period of 3 months (June 2014 to August 2014). Data was collected among 310 girls (18–25 years) on age at menarche, presence and absence of dysmenorrhoea, dysmenorrhoea duration, pre-menstrual symptoms (PMS), family history, menses irregularities, menstrual history, severity grading using visual analogue scale (VAS) using a semi-structured questionnaire. Dysmenorrhoea was reported in 84.2% (261) girls and 15.8% (49) reported no dysmenorrhoea. Using VAS, 34.2% of girls experienced severe pain, 36.6% moderate and 29.2% had mild pain. Bleeding duration was found to be significantly associated with dysmenorrhoea ($\chi^2 = 10.5$; $P < 0.05$), girls with bleeding duration more than 5 days had 1.9 times more chance of getting dysmenorrhoea. Moreover, girls with the presence of clots had 2.07 times higher chance of having dysmenorrhoea ($P < 0.05$). Almost 53.7% girls who had some family history of dysmenorrhoea, 90.9% experience the condition themselves ($\chi^2 = 11.5$; $P < 0.001$). Girls with family history of dysmenorrhoea had three times greater chance of having the same problem. **(Naziya Nagoori Noor., 2015)**

2.2. Impact of dysmenorrhoea on academic, sports and social activities:

Primary dysmenorrhoea can cause disability (loss of function and activity) and handicap (altered social roles), which impairs quality of life. It not only causes discomfort in approximately one – fifth of the female population, but also causes many social, physical, psychological and economic problems for women all around the world. Primary dysmenorrhoea is considered the main cause of absence from school, among young female students. **(Solvberg M, et al., 2005).**

A stratified, random sample of 2721 women 18 Years and older was identified with primary dysmenorrhoea in Canada. The women were interviewed by telephone. Data about menstrual symptoms and patterns and socio-demographic factors were obtained. The frequency, severity, and effect of menstrual pain were quantified. In the sample, 1546 women were having menstrual periods; of these, 934 (60%) met the criteria for primary dysmenorrhoea. 60 % of the women with primary dysmenorrhoea described their pain as moderate or severe. 51 % percent reported that their activities had been limited, and 17% reported missing school or work because of primary dysmenorrhoea. The prevalence of primary dysmenorrhoea decreased with increasing age ($P < 0.001$ and increased with smoking ($P = 0.002$). Users of oral contraceptives tended to have less pain than non-users ($P = 0.005$). **(Margaret A Burnett., 2005)**

A study conducted in Houston on prevalence and impact of dysmenorrhoea on Hispanic female adolescent had shown that 85% reported dysmenorrhoea. Of these 38% reported missing school. Activities affected include class concentration (59%), sports (51%), class participation (50%), and socialization (46%). **(Kelder H S., 2008)**

A cross-sectional survey was carried out among 404 girls from two public high schools in the Muscat region. Data were collected by self-administered questionnaire including information on demographics, prevalence of dysmenorrhoea, severity, its impact, and the treatment used. Overall, 94% (n = 380) of the participants had dysmenorrhoea. It was mild in 27% (n = 104), moderate in 41% (n = 155), and severe in 32% (n = 121). Dysmenorrhoea was the cause of limited sports activities in 81%, decreased class concentration in 75%, restricted homework in 59%, school absenteeism in 45%, limited

social activities in 25%, and decreased academic performance in 8% of the affected students. **(Rahma Al – Kindhi., 2011)**

A cross-sectional study was conducted in four secondary schools for girls in Assiut city that were chosen randomly from a listing frame. Among 845 adolescent school girls with dysmenorrhoea, 53.5% indicated that dysmenorrhoea limited their class concentration; 50.9% sports participation; 49.9% class participation; 45.3% going out with friends; 35.6% test-taking skills, 35.6% homework tasks performance. About 39% reported missing school days and 30% reported missing individual classes due to menstrual cramps during the previous 3 months. Among participants reporting school absence, 45% reported missing one half to 1 day of school, 38% reported missing 2-3 days, and 17% reported missing more than 4 days. The rate of school absenteeism was 53% among participants reporting severe menstrual pain compared with 22% among those with mild menstrual pain. 69% of participants with dysmenorrhoea reported that they either did not think or did not know whether a physician could help them with their menstrual symptoms. Overall, 42% of the participants with dysmenorrhoea consulted the school nurse during the previous 3 months but 81% of those who visited the school nurse reported no relief from this visit. In contrast to the 42% of school nurse consultation rate, only 9% consulted a physician for help; this rate increased to 14% among participants reporting severe menstrual pain. **(Eman M Mohamed et al., 2012)**

A cross-sectional descriptive study was conducted in NKP Salve Institute of Medical Sciences and Research Center, Nagpur among medical college girl students. To find out prevalence of dysmenorrhoea, its impact on various activities and to assess health care seeking behavior during dysmenorrhoea. All girl students (first to final MBBS) from a medical college who were willing to participate included in the study (N = 150). Data was analyzed in proportions, mean and standard deviation. Prevalence of dysmenorrhoea was found to be high (66%). Premenstrual syndrome was present among 44% girls. Nearly half of the girls reported dysmenorrhoea every month and among 1/3rd girl's intensity of pain of dysmenorrhoea was severe. Common relieving factor was found to be rest. 45% girls reported absenteeism from colleges due to it. 87% girls reported limitations in various activities due to dysmenorrhoea. Only 1/3 rd girls were seeking health care for

dysmenorrhoea. Maximum number of girls (89%) reported 'no need of treatment' during dysmenorrhoea. **(Meenal Kulkarni., 2014)**

2.3. Studies related to aerobic exercises as management of dysmenorrhoea:

A randomized clinical trial study was conducted to determine the effect of exercise on primary dysmenorrhoea among 150 high school girls in Iran city that suffering from severe dysmenorrhoea. Student were separated it showed that the intensity of the pain in the exercise group declined from 8.59 to 4.63 in the third period and 2.84 in the fourth period. The average of the duration pain declined from 7.15 to 4.22 in the third period and 2.23 in the fourth period. In conclusion the exercise can decrease the duration and severity of dysmenorrhoea**. (Abbaspour Z., 2006)**

A study conducted in Manjunathana Nagar, Bangalore. To assess the relationship between the symptoms of menstrual distress and macro nutrient intake, eating behavior, and exercise in healthy 26 normally menstruating women with no complaints of menstrual distress, completed a disguised questionnaire on menstrual symptoms and monitored the type and amount of food consumed as well as the type and duration of exercise during a full menstrual cycle. Report of pain, water retention, negative effects, behavior change, and arousal were significantly higher at a level of $p<0.05$ or better, in the perimenstrum when compared to follicular and luteal phase. The results says that the amount of aerobic exercise in contrast to the intensity was related to lower water retention at level of $p<0.01$. **(Nangle and Bergeron K C., 2010)**

A comparative study was conducted for 8 weeks to evaluate and compare the effectiveness of Aerobic exercises and Golub's exercises in Primary Dysmenorrhoea in high school girls of Belgaum city. Randomized Clinical Trial method was used in 160 high school girls suffering from Primary Dysmenorrhoea randomly assigned to Group A (Aerobic exercises) and Group B (Golub's exercises). The outcome measures used were Visual Analogue Scale (VAS), Moos' Menstrual Distress Questionnaire (MMDQ) and log book for absenteeism from school. The Pre intervention and Post intervention values of outcome measures were noted on 1st day pre intervention, 4th week and 8th week post intervention were observed in both the groups A and B. But when inter group analysis was

done Group A was better as compared to Group B. Results support that aerobic exercises showed better improvement in terms of Pain reduction and reducing symptoms of primary dysmenorrhoea as compared to Golub's Exercises. **(Gangane P., 2011)**

A true experimental study to assess the effect of one term of stretching exercise on primary dysmenorrhoea girls aged 15-17 years at University of Arak, Iran. A total 179 number of sample was taken. Moderate-to-severe primary dysmenorrhoea was selected from 6 high schools located in 2 different city zones. Participants were randomly divided into 2 groups: an experimental group (n = 124) and a control group (n = 55). In the intervention group, the subjects were requested to complete an active stretching exercise for 8 weeks (3 days per week, 2 times per day, 10 minutes each time) at home. In the pre-test, all of subjects were examined for pain intensity (10-point scale), pain duration in 2 continuous menstruation cycles. After 8 weeks, pain intensity was reduced from 7.65 to 4.88; pain duration was decreased from 7.48 to 3.86 hours in the experimental group. In the control group, a significant decline was only noted for pain duration ($p<0.001$). Stretching exercises are effective in reducing pain intensity and pain duration used by girls with primary dysmenorrhea. **(Shahr-jerdy S et al., 2012)**

A randomized control trial study was conducted in Bangalore, on complementary and alternative medicine (cam) therapies for obstetrical and gynecological condition and presents therapies that are likely to be used by women of reproductive age and by pregnant women. Clinical information was extracted from the article and summarized in tabular form or in the text. Sample were 93 trials identified, 43 of which were pregnancy related conditions, 13 of which were dysmenorrhoea, 33 of which were premenstrual syndrome. Data support the use of low-fat diet, exercise, fish oil supplementation for dysmenorrhoea, role for further research on vitamins b6 or ginger for nausea and vomiting of pregnancy; calcium, magnesium, vitamin b6, chaste-tree berry extract for premenstrual syndrome. **(Praseetha K V., 2012).**

A study was conducted in university of Bushehr in Iran. To assess the effect of Physical activity on Primary Dysmenorrhoea among 98 female students in the age group of 17-19 years. The pretest mean and standard deviation was 6.66±1.02 respectively and posttest mean and standard deviation was 2.40±0.73 respectively. The results shows that

performing a regular physical activity significantly reduced pain intensity in experimental group when comparing with control group. It is concluded that participating in physical activity program is likely an approach to reduce the detrimental effect of primary dysmenorrhoea symptoms in young females. **(Noorbakhsh Mahvash at el., 2012).**

A quasi-experimental study was conducted on non-athlete girl students aged 18-25 years at Khorasgan Azad University in eastern zone of Isfahan. A total 40 sample was taken. Individuals in the experimental group practiced aerobic exercise for 8 weeks, three sessions per week for 60 min. The subjects were evaluated during the first (the pre-test), second (the mid-test), and third menstrual period (the post-test).t-test and ANOVA was used to measure analysis of variance. The comparison of the two groups showed that the mean scores of pre-menstrual syndrome, for symptoms during and after exercise, were different ($P \leq 0.001$) and the percentages of scores ($P \leq 0.001$) after 8 weeks of training. The findings showed that aerobic exercise is effective in reducing the symptoms of PMS and can be used as a treatment. **(Samadi Z et al., 2013)**

A quasi experimental study was conducted using one group pretest-posttest design on college students aged between 20-25 years old who suffered from dysmenorrhoea in syiah kuala university, Indonesia. Participants with history of gynecological diseases such as uterine infection, uterine cyst, myomauteri, adenomyosis, and imperforate hymen and do not complete the intervention were excluded from the study. Before entering the study all participants were examined using ultrasonography to find out the gynecological diseases. To measure the dysmenorrhoea, researchers used the numerical rating scale ranged from 0 (no pain), 1-3 (mild pain), 4-6 (moderate pain), 7-9 (controlled severe pain) and 10 (uncontrolled severe pain) the aerobic exercise were performed three times a week for 45 minutes with the instructor until the next period (+1 month). After analysis pain score of dysmenorrhoea before intervention was 6.26 decreased to 3.26 after aerobic exercises and the results showed the significance value of ($p<0,05$). So, aerobic exercise has a significant influence in reducing the level of pain of dysmenorrhoea in women. **(Munawar., 2013)**

A quasi experimental study was carried out on 30 female non-athletic volunteer between 18-25 years with primary dysmenorrhoea. Participants completed, Moos

menstrual distress questionnaire before aerobic exercise, first month, and second month. The questionnaire contains 23 questions that included 9 questions about physical symptoms, and 14 questions about psychological symptoms. In questionnaires, psychological symptoms such as dysmenorrhoea in anger or irritability, anxiety, tension or impatience sense of difficulty in concentrating, changes in appetite, insomnia or constant sleeping and physical symptoms ,including back pain, dysmenorrhoea, abdominal pain, nausea, diarrhea ,head ache and muscle pain can be assessed. The training program include 8 weeks of swimming training 3 days a week, each session lasting 45 minutes. The results of this study showed 8 weeks aerobic training significantly decreased psychological and physical symptoms in primary dysmenorrhoea. **(Ebrahim Khoshnam et al., 2014)**

The clinical trial was conducted to study the effectiveness of aerobic exercises on symptoms of Primary dysmenorrhoea for 8 weeks in terms of reduction of pain in MAEER's Physiotherapy College, India, using Visual analogue scale, Aerobic exercise is found to be effective in reducing pain and symptoms of dysmenorrhoea. It is considered that the pain during menstrual cycle is due to prostaglandins' which are present in high quantities in menstrual fluid. They are potent vasoconstrictor and thus cause ischemia to the uterus and even reduced progesterone may also cause increased production of prostaglandin, the mediator of pain. Reduced titer of progesterone causes increased myometrial contraction, that gives more strain to ischemic myometrium and intensify pain resulting dysmenorrhoea. Exercises act on the lining of the uterus and increases level of circulating endorphins which in turn raise the pain threshold. The result of the study findings concluded that women who exercised at least once per week show a significant improvement in reduction of pain during menstruation. **(Nigar Shikalgar, 2016).**

A randomized clinical trial was conducted on the female students of Mazandaran University of Medical Sciences, Iran; the sample size calculation was 61 for each group (based on the size effect for exercise of 2.1±2.0 and Mefenamic acid of 3.3±1.2, a confidence interval of 95% and power of 80%). The exercise program included a five-minute warm up in a standing position and then six belly and pelvic stretching exercise for 10 minutes. This program was performed for 15 minutes, three times a week in two menstrual cycles (eight weeks). Exercise was not performed during menstruation. Students

in the mefenamic acid group received 250 mg capsules every eight hours from the onset of menstruation until pain relief also for two cycles. Both interventions were performed during two consecutive cycles. In both groups, the intensity of pain was assessed using the visual analogue scale at the end of the first and second menstrual cycles. The mean pain intensity was significantly higher in the exercise group only in the first cycle ($p = 0.058$). In the second cycle, the mean difference in pain reduction in the exercise group was higher than the mefenamic group compared to the start of the study ($p = 0.056$) and the first cycle ($p = 0.007$). There was no significant difference in the severity and duration of pain between the groups ($p > 0.050$). **(Narges Motahari-Tabari., 2017)**

CHAPTER – III

MATERIALS AND METHODS

Research design is a blue print for conducting a study. Designing a research involves development of a plan strategy that will guide the collection and analysis of the data. The methodology of the study constitutes the research design, tool, and procedure for data collection and techniques for data collection, report of pilot study. (Suresh K Sharma., 2007). The present study was to determine the effectiveness of aerobic exercise in reduction of primary dysmenorrhoea.

3.1 Research Approach and Design:

Pre experimental one group pretest – posttest design was used in this study. This design measures the effect on the experimental group, based on their state before the beginning of the experiment (pretest) and the difference achieved at the end of the experiment (posttest). There is no control group in this design.

3.2 Variables of the study:

3.2.1 Dependent Variable: The dependent variable of this study is primary dysmenorrhoea among adolescent girls.

3.2.2 Independent variable: The independent variable of this study isan aerobic exercise.

3.3 Setting of the study:

The P.S.G. College of nursing which started in 1994 which is an ISO certified Institution. PSG College of nursing offers a 4 year B.Sc. Nursing Degree Course and a 2 year Post Graduate (M.Sc. Nursing) Program, the College of Nursing also excels in teaching, research, service and leadership. The study was conducted in PSG College of Nursing, Peelamedu, Coimbatore and intervention was given in Seminar Hall of PSG College of Nursing. The measurement of seminar hall is 2500 square feet. Orbitrek elite cycling machine was kept inside the seminar hall and used by the students for the research purpose.

3.4 Population and Sampling:

The population composed of adolescent girls with regular menstruation and who had primary dysmenorrhoea and studying II & III year B. Sc (N), at PSG CON, Coimbatore. The total number of girls studying in II & III B. Sc (N) is 154 students. All adolescent girls who are aged between 17- 19 years and who met the inclusion criteria were selected. Sample size was calculated by using power analysis method.

3.4.1. Sampling technique and sample size:

The sampling technique used in this study was purposive sampling technique. The calculated sample size was 40 students. The adolescent girls who met the inclusion criteria were selected for the study. Total samples were 40 adolescent girls.

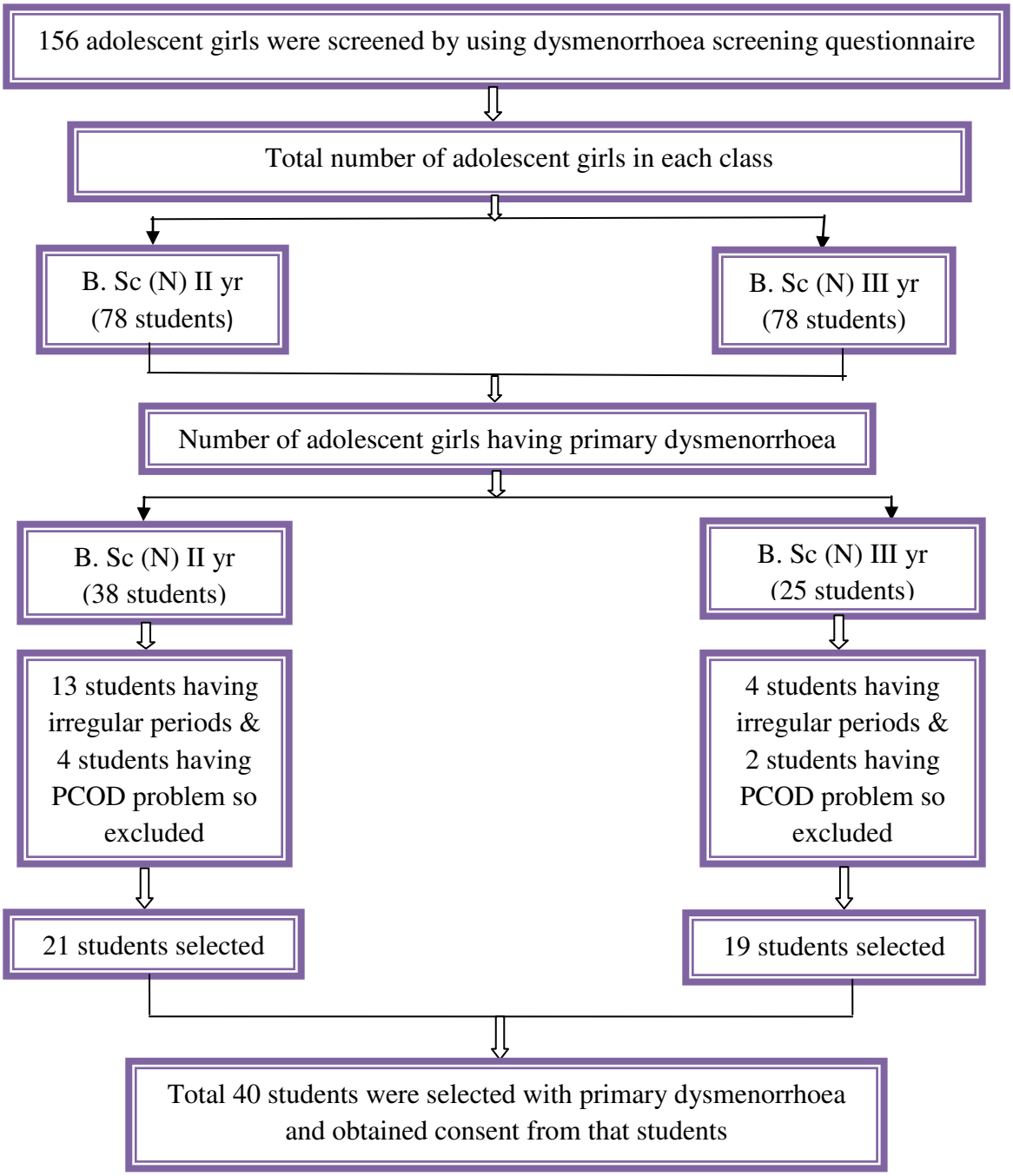

Figure 3.1 Schematic representation of sampling technique

Sample size calculation:

$$n = \frac{Z^2 \times N \times SD^2_P}{(N-1)e^2 + Z^2 \times SD^2_P}$$

N= size of population

n = size of sample

e = acceptable error

SDp = standard deviation of a population

Z = standard variation at a given confidence level

$$= \frac{(.96)^2 \times 137 \times (.98)^2}{(45-1) \times (.5)^2 + (.96)^2 \times (.95)^2}$$

$$= \frac{2063.30338}{51.0606}$$

n = 40.41

Estimated sample size is 40.

3.4.2 Criteria for sample selection:

3.4.2.1 Inclusion criteria:

1. Adolescent girls between 17 - 19 years of age
2. Adolescent girls who have regular menstrual cycle.
3. All adolescent girls who are having primary dysmenorrhoea and willing to participate in the study.

3.4.2.2 Exclusion Criteria:

1. Adolescent girls who are having chronic gynecological illness i.e. menorrhagia, metorrhogia, PCOD.
2. Adolescent girls who are already receiving any other measures for dysmenorrhoea.

3.5 Instruments and tool for data collection:

Section A: Demographic data

Section B: Menstrual profile of girls with dysmenorrhoea

Section C: Questionnaire for assessment of dysmenorrhoea symptoms

Section D: Management of dysmenorrhoea

Section E: Steps of aerobic exercise

Section A: Demographic data.

Demographic data of adolescent girls includes the age, education, type of family, family income, family history of dysmenorrhoea. (Annexure IV- A)

Section B: **Menstrual profile of girls with dysmenorrhoea.**

The Menstrual profile of girls with dysmenorrhoea tool consists of 9 questions to know about menstrual history, which include age at menarche, duration of menstrual cycle, number of days of menstruation, characteristics of bleeding, nature of pain, onset of dysmenorrhoea, days of menstruation with severe pain, pattern of rest, dietary pattern. (Annexure IV- B)

Section C: **Questionnaire for assessment of degree of dysmenorrhoea symptoms**

The Questionnaire for assessment of degree of dysmenorrhoea symptoms consists of 27 questions to know the degree of dysmenorrhoea. Which includes effect of dysmenorrhoea on daily activities, academic performance and **physiological symptoms** consists of (Exhaust, lethargic, tired, Painful cramps in lower abdomen, Back ache, radiating pain to thighs and lower back, Nausea, Vomiting, Changes in bowel and bladder pattern, Fainting, Painful breast, abdominal bloating, Joint pain, Urinary frequency, Dizziness), and **Psychological symptoms** which consists of menstrual migraines, depression, irritability/easily agitated, Rapid mood changes, poor concentration, anxiety, insomnia, hypersomnia, over eating/food craving, Tension/nervousness and assess the severity of menstrual Pain by using numerical pain rating scale. No pain – 0, mild pain 1-3,

moderate pain 4-7, severe pain 8-10. Based on the response it has been scored as No symptoms (1), Mild symptoms (2), Moderate symptoms (3), severe symptoms (4). (Annexure IV- C)

Section D: Management of dysmenorrhoea

This section consists of 6 questions regarding management of dysmenorrhoea which includes, consultation of doctor for dysmenorrhoea, any medications prescribed, is there students take medicines without prescription, measures taken to get relive from abdominal pain, exercise pattern, action taken for dysmenorrhoea during class hours. (Annexure IV- D)

Scoring and Interpretation

Scoring and interpretation only for Section-C, this section consists of 27 questions, the score prescribed for each questions was 4, total score was 108 it has been interpreted as following

- Score 1-27 No dysmenorrhoea
- Score 28-54 Mild dysmenorrhoea
- Score 55- 81 Moderate dysmenorrhoea
- Score 82- 108 Severe dysmenorrhoea

Section E: Steps of aerobic exercise:

Total duration of exercise 40 minutes, which includes the following exercises

- Warm up-10 min, (walking 4 min, stretching exercise 6 min - pectorals stretching, calf and hamstring stretching, triceps stretching, illiopsoas stretching all the muscles given 3 repetition)
- bicycling 10 min
- step-up-down 10 min
- Strengthening exercise 5 min (shoulder flexors, shoulder external rotator, shoulder abductors, knee flexor, shoulder internal rotator, knee extensor),
- Cool down 5 min

3.6 Device used for the study:

The name of the device is Orbitrek elite mainly used for the cycling purpose. Simulates walking and running with Zero Impact on Knees and Joints. 10 Minutes of work-out in Orbitrek Elite is 300% more effective than 10 Minutes of walking. Total body work-out targets arms, shoulders, chest, abdomen, back and thighs. Combines slimming & muscle sculpting. Certified to give Cardio- vascular workout. Reverse movement, to target different muscle groups. Turn & Burn resistance - burn a maximum of 820 calories in 1 Hour. When workout on Orbitrek, the rate of heart beat will increase and will sweat out more. This will gradually help in enhancing aerobic capacity in body. If workout on Orbitrek for around 4 days a week for 20 minutes, then it is enough for augmenting our aerobic capacity.

3.7 Benefits of aerobic exercise:

Aerobic exercise increases the release of several neurotransmitters including natural endorphins (the brain natural painkillers which can raise the pain threshold), estrogen, dopamine and endogenous opiate peptides, as well as altering the reproduction of hormone secretion, suppressing prostaglandin from being released and raising the estrone-estradiol ratio which acts to decrease endometrial proliferation and shunts blood flow away from the uterus.

3.8 Validity and Reliability of the Tool:

Validity of the study has been determined by expert's opinion from the different fields along with, objectives of the study. The experts were requested to give their opinion, clarity, and appropriateness, suggestion, for the modification of the tool.

Reliability of the questionnaire for assessment of dysmenorrhoea symptoms tool was identified by using split half method. It was computed using Karl's Pearson's correlation method. The reliability of tool was found to be 0.73 the tool was found to be reliable.

3.9 Ethical approval:

The Institutional Human Ethics Committee (IHEC) (Annexure III), PSG institute of medical science and research reviewed the proposal on in its full board meeting and approved the study to conduct. After getting ethical clearance from Institutional Human Ethics Committee (IHEC) data collection was done.

3.10 Data collection procedure:

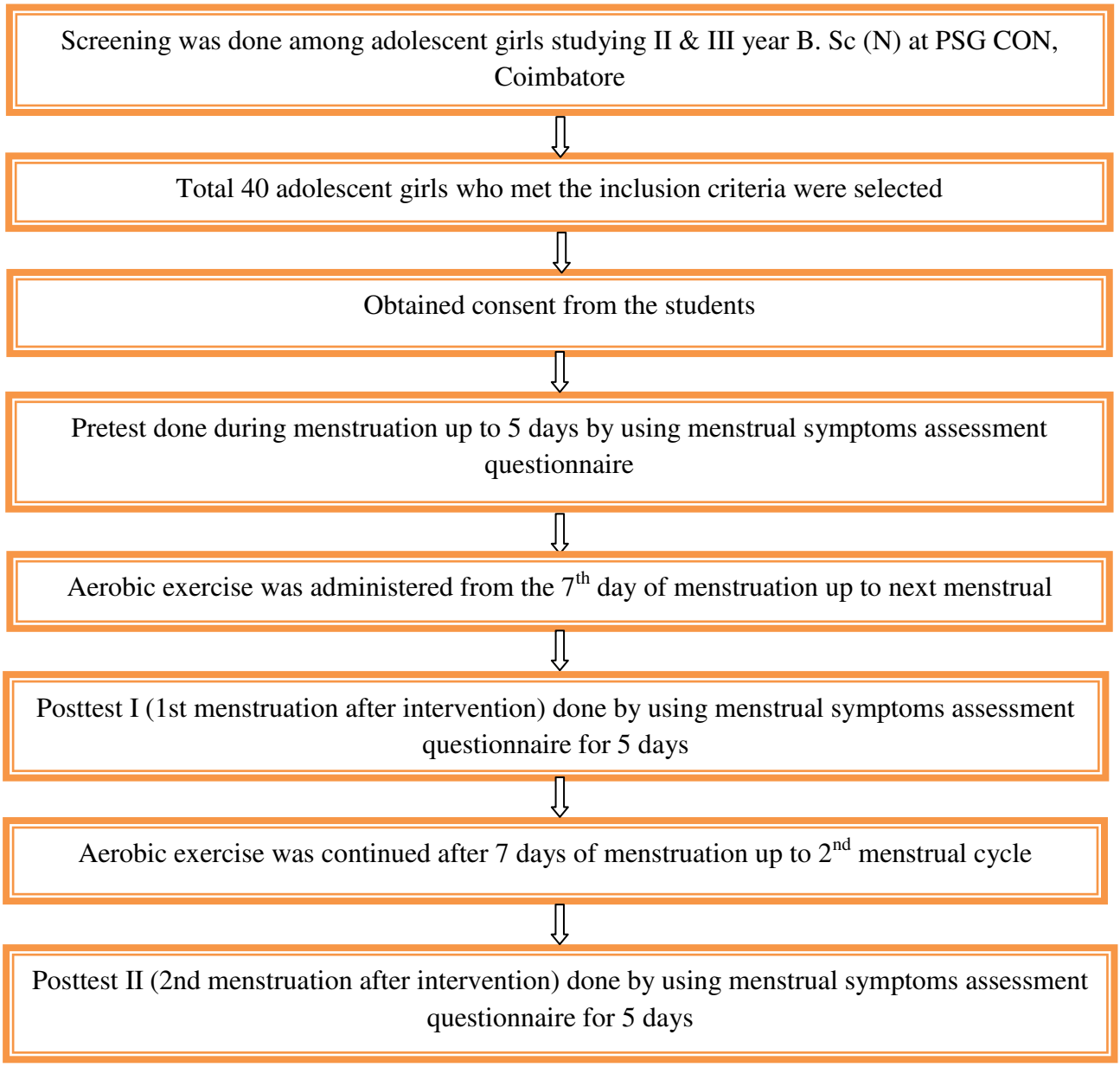

Figure 3.2 Schematic representation of Research process

Screening was done among adolescent girls studying II & III year B. Sc (N) at PSG College of Nursing, total number of students was 146 among that 63 students having the complaints of dysmenorrhoea during menstruation, in that 17 students having irregular periods and 6 students having poly cystic ovarian disease problem so they were excluded from the study, remaining 40 students met the inclusion criteria and selected for the study. Pretest was done during menstruation up to 5 days by using menstrual symptoms assessment questionnaire and aerobic exercise was administered from the 7^{th} day of menstruation in the Seminar Hall of PSG College of Nursing between 5 pm – 6 pm for minutes/day an alternative days up to 7 weeks for two consecutive menstrual cycles. Posttest I and II was done during menstruation for 5 days up to two consecutive menstrual cycles.

3.11 Report of the pilot study:

Pilot study was conducted to test the practicability of the tool and feasibility of tool for conducting the study. It was conducted for a period of one week from 19-9-16 to 24-09-16, in fitness center, PSG IMSR. For pilot study 6 nursing female students were selected based upon purposive sampling and according to the inclusion criteria. Pretest was conducted on 19.09.16. From first day, intervention was given such as performing aerobic exercises the post test was conducted after menstruation for one cycle. The data were tabulated and analyzed using descriptive and inferential statistics. By using paired‘t’test data analysis was done and the‘t’ test value was 2.43 which is significant at the level of ($p<0.05$). The finding of the study reveals that there was significant difference in the effectiveness of aerobic exercise in reduction of primary dysmenorrhoea. By using chi square test data analysis was done to find the association between pre-test level of dysmenorrhoea and their selected demographic variables the result showed that the calculated value were less the tabulated value at the level of ($p<0.05$). So the aerobic exercise was independently effective in reducing the primary dysmenorrhoea symptoms. Hence the alternative hypothesis was rejected.

3.11.1 Changes Brought After Pilot Study:

Changes incorporated in the study after the pilot study presentation was to assess pre intervention degree of primary dysmenorrhoea symptoms for 5 days during menstruation by using menstrual symptoms assessment questionnaire and from 7^{th} day onwards aerobic exercise was administered, after that posttest I and II done during menstruation by using menstrual symptoms assessment questionnaire up to 5 days for two consecutive menstrual cycles.

3.12 Data Analysis Plan:

The data collected through various methods will be compiled by adopting appropriate statistical techniques and inferences.

- Frequency and percentage was used for describing demographic variables and degree of dysmenorrhoea.
- Mean and standard deviation was used for descriptive statistics
- Paired‘t’ test was used to assess the effectiveness of aerobic exercise on primary dysmenorrhoea among adolescent girls.
- Karl pearson correlation coefficient was used to find out the correlation between the menstrual characteristics with menstrual symptoms among adolescent girls.
- Chi-square test was used to find out the association between the pretest degree of dysmenorrhoea and selected demographic variables among the adolescent girls, before intervention.

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

Data analysis is the systematic organization and synthesis of research data and in quantitative studies, the testing of hypotheses using those data. Interpretation is the process of making sense of study results and of examining their implications (Polit and Beck, 2009). This chapter deals with the analysis of the data collected from the students and the interpretation of the results helps in making sense of the result study. The data was collected to assess the effectiveness of aerobic exercise in reduction of primary dysmenorrhoea among adolescent girls. The data was collected, analyzed and tested for significance.

The data analysis was organized and presented in the table under the following section.

4.1 Adolescent girls according to demographic variables

4.2 Adolescent girls according to their menstrual profile and management of primary dysmenorrhoea

4.3 Pretest assessment of degree of primary dysmenorrhoea among adolescent girls

4.4 Effectiveness of Aerobic Exercise on primary dysmenorrhoea among adolescent girls.

4.5 Correlation between the menstrual characteristics with menstrual symptoms among adolescent girls.

4.6 Association between selected demographic variables and pretest degree of primary dysmenorrhoea among adolescent girls.

Section 4.1: Adolescent girls according to demographic variables

Table 4.1

Frequency and percentage distribution of adolescent girls according to their demographic data n=40

S.No	Demographic Variables	Frequency (f)	Percentage (%)
1	**Age**		
	18 years	15	37.5%
	19 years	25	62.5%
2	**Education**		
	B. Sc (N) II yr	21	52.5%
	B. Sc (N) III yr	19	47.5%
3	**Type of family**		
	Nuclear family	37	92.5 %
	Joint family	3	7.5%
4	**Family income**		
	Below 10,000	7	17.5%
	11,000 – 30,000	21	52.5 %
	31,000 – 50,000	7	17.5 %
	Above 51,000	5	12.5%
5	**Family history of dysmenorrhoea**		
	Yes	13	32.5%
	No	27	67.5%

Table 4.1 reveals that among 40 samples, more than half of the students 25(62.5%) falls in the age group of 19 years. More than half of the students 21(52.5%) studying B. SC (N) II year, most of the students 37 (92.5%) were belongs to nuclear family, more than half of the students 21 (52.5%) of their family monthly income falls under Rs. 11,000 - 30,000, more than half of the students 27 (67.5 %) not having family history of dysmenorrhoea.

Section 4.2: Menstrual profile of adolescent girls and management for primary dysmenorrhoea

Table 4.2

Frequency and percentage distribution of menstrual profile and management of primary dysmenorrhoea among adolescent girls.

n = 40

S.No	Menstrual profile	Frequency (f)	Percentage (%)
1	**Age at menarche**		
	12-13 years	28	70 %
	14-15 years	12	30 %
2	**Duration of menstrual cycle**		
	15 – 20 days cycle	-	-
	21-28 days cycle	30	75 %
	29-35 days cycle	10	25 %
3	**Number of days of menstruation**		
	< 3 days	2	5 %
	3-4 days	25	62.5 %
	5-6 days	13	32.5 %
4	**Characteristics of bleeding**		
	Only blood	19	47.5 %
	Blood with clots	21	52.5 %
5	**Nature of pain**		
	Mild pain	8	20 %
	Moderate	6	15 %
	Severe	9	22.5 %
	Cramping pain	4	10 %
	Radiating pain to back and thigh	13	32.5 %
6	**Onset of dysmenorrhoea**		
	1st menarche onwards	11	27.5 %
	Within an year after menarche	7	17.5 %
	After 1 year	9	22.5 %
	After 2 or more years	13	32.5 %
7	**Day of menstruation with severe pain**		
	One day before onset of menstruation	4	10 %
	On the 1st day	27	67.5 %
	On the 2nd day	9	22.5 %

S.No	Menstrual profile	Frequency (f)	Percentage (%)
8	**Do you take adequate rest**		
	Yes	23	57.5 %
	No	17	42.5 %
9	**Do you skip meals**		
	Yes	8	20%
	No	32	80%
10	**Have you consulted doctor for dysmenorrhoea**		
	Yes	1	2.5 %
	No	39	97.5 %
11	**Have you been prescribed medications**		
	No	40	100%
12	**Have you take medicines without prescription**		
	No	40	100%
13	**Measures take to get relieve from abdominal pain**		
	Hot/cold application	3	7.5 %
	Massage	4	10 %
	Bed rest	21	52.5 %
	No measures	12	30 %
14	**Do you perform any exercise**		
	Yes	3	7.5 %
	No	37	92.5 %
15	**Action taken for dysmenorrhoea during class hours**		
	Inform class teacher and seek help	3	7.5 %
	Inform friends and get help	6	15 %
	Manage the situation by self	30	75 %
	Ask permission and going to hostel	1	2.5 %
	Other measures	**-**	**-**

Table 4.2 reveals that among 40 students, majority of the students 28 (70 %) attained menarche at 12-13 years of age, majority of the students 30 (75 %) having 21-28 days duration of menstrual cycle, more than half of the students 25 (62.5%) having 3-4 days of menstruation, more than half of the students 21 (52.5%) having periods with clots, less than half of the students 13 (32.5%) having radiating pain to back and thigh (Figure 4.2.5), less than half of the students 13 (32.5%) having dysmenorrhoea after 2 or more years of menarche, majority of the students 27 (67.5%) having pain on the 1st day of menstruation, more than half of the students 23 (57.5%) taken adequate rest, majority of the students 32 (80%) not skipping meals, majority of the students 39 (97.5%) not consulted the doctor, none of them 40 (100%) prescribed any medications for dysmenorrhoea, none of them 40 (100%) took medicines without prescription, more than half of the students 21 (52.5%) take bed rest to relieve from pain (Figure 4.2.10), majority of the students 37 (92.5%) not performing any exercises, majority of the students 30 (75%) manage their situation by self.

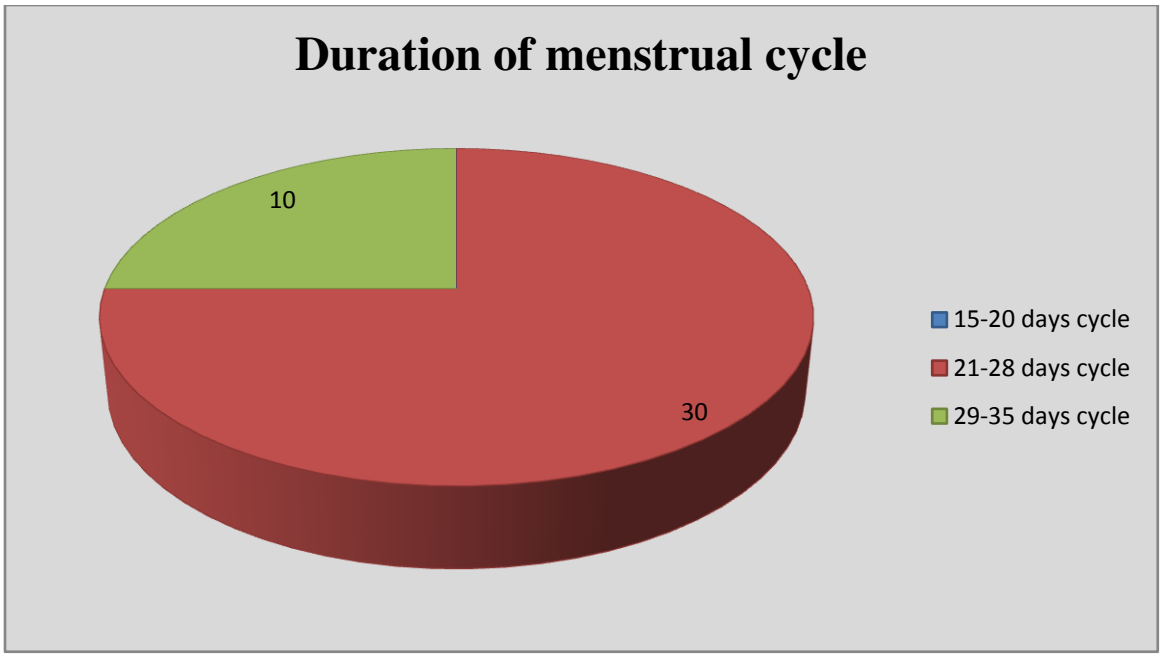

Figure 4.2.2 Pie diagram Shows duration of menstrual cycle among adolescent girls

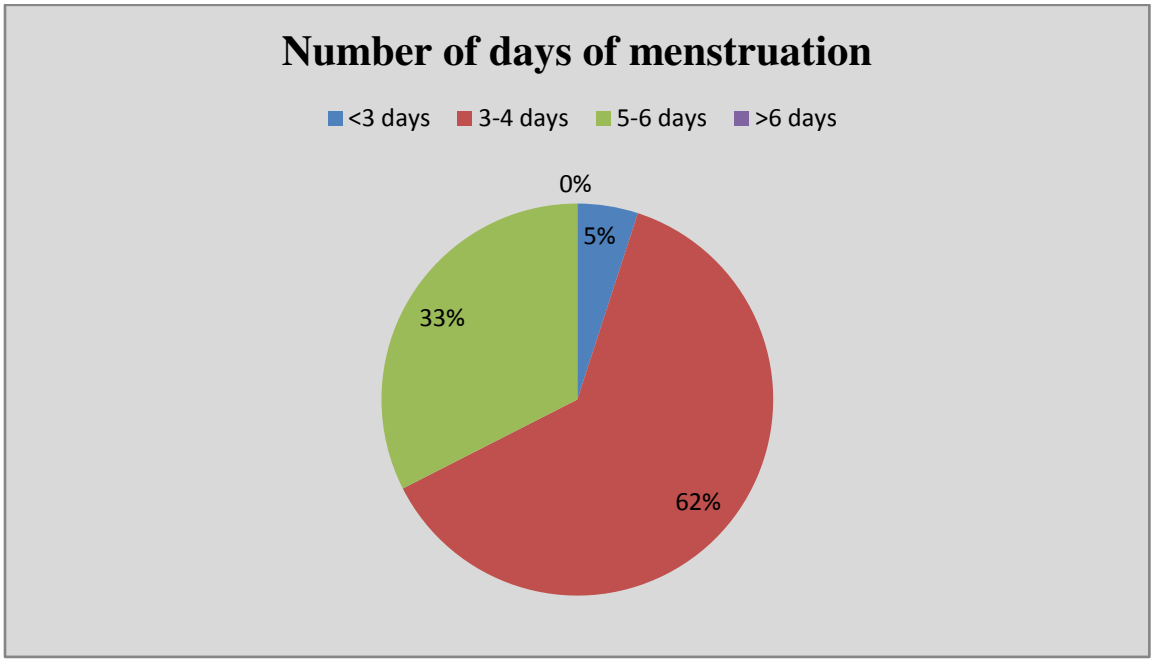

Figure 4.2.3 Pie diagram shows adolescent girls with number of days of menstruation

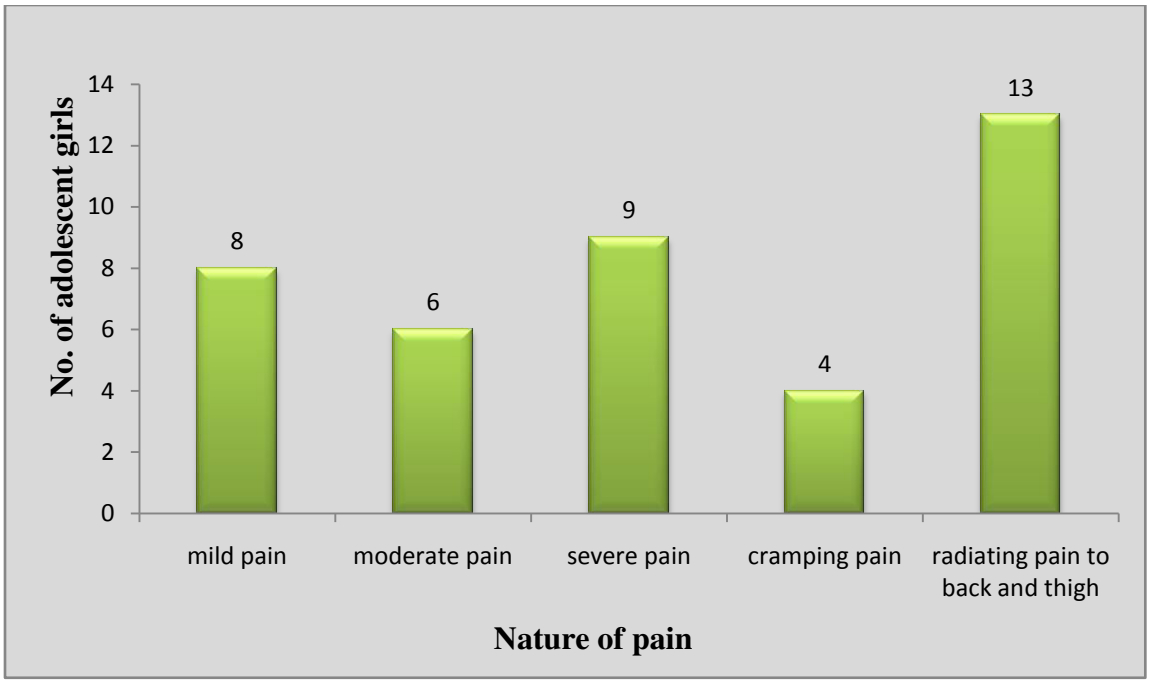

Figure 4.2.5 Bar diagram shows nature of pain among adolescent girls

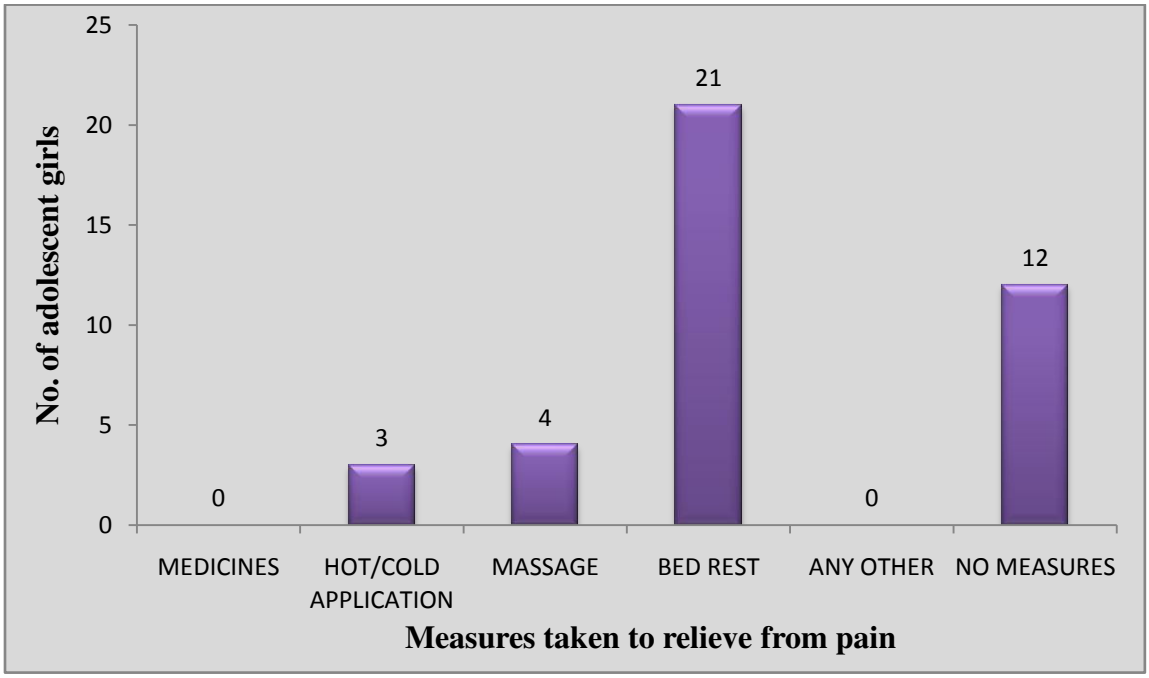

Figure 4.2.10 Bar diagram shows measures taken by adolescent girls to get relieved from abdominal pain

Section 4.3 Pretest assessment of degree of primary dysmenorrhoea among adolescent girls

Table 4.3

Frequency and percentage of degree of primary dysmenorrhoea n=40

S. No	Dysmenorrhoea symptoms	No		Mild		Moderate		Severe	
		f	%	f	%	f	%	f	%
1.	**General characteristics**								
	Total duration of pain in hours	-	-	36	90	4	10	-	-
	Does dysmenorrhoea affect your daily activities	9	22.5	24	60	7	17.5	-	-
	Does dysmenorrhoea affect your college work or studies	11	27.5	25	62.5	4	10	-	-
2.	**Physiological symptoms**								
	Exhaust, lethargic, tired	4	10	30	75	6	15	-	-
	Painful cramps in lower abdomen	3	7.5	24	60	13	32.5	-	-
	Back ache	3	7.5	22	55	15	37.5	-	-
	Radiating pain to thighs and lower back	7	17.5	29	72.5	4	10	-	-
	Nausea	35	87.5	5	12.5	-	-	-	-
	Vomiting	36	90	4	10	-	-	-	-
	Changes in bowel and bladder pattern	37	92.5	3	7.5	-	-	-	-
	Fainting	34	85	6	15	-	-	-	-
	Painful breast	25	62.5	15	37.5	-	-	-	-
	Abdominal bloating	28	70	12	20	-	-	-	-
	Joint pain	18	45	20	50	2	5	-	-
	Urinary frequency	31	77.5	9	22.5	-	-	-	-
	Dizziness	26	65	13	32.5	1	2.5	-	-
3.	**Psychological symptoms**								
	Menstrual migraines	38	95	2	5	-	-	-	-
	Depression	27	67.5	12	30	1	2.5	-	-
	Irritability/easily agitated	18	45	20	50	2	5	-	-
	Rapid mood changes	23	57.5	16	40	1	2.5	-	-
	Poor concentration	12	30	26	65	2	5	-	-
	Anxiety	23	57.5	16	40	1	2.5		
	Insomnia	29	72.5	9	22.5	2	5	-	-
	Hypersomnia	36	90	4	10	-	-	-	-
	Over eating/food craving	38	95	2	5	-	-	-	-
	Tension/nervousness	12	30	27	67.5	1	2.5	-	-
4.	Menstrual pain intensity in numerical pain rating scale	-	-	23	57.5	17	42.5	-	-

Table 4.3 reveals in general characteristics that among 40 students, majority of the students 36 (90%) had 1-4 hours of pain during menstruation, more than half of the students 24 (60%) interrupted in their daily activities, more than half of the students 25 (62.5%) had interrupted in academic performance.

In physiological symptoms reveals among 40 students, majority of the students 30 (75%) had exhaust, lethargic and tired, more than half of the students 24 (60%) had painful cramps in lower abdomen, more than half of the students 22 (55%) had back ache, majority of the students 29 (72.5%) had radiating pain to thighs and lower back, majority of the students 35 (87.5%) not having nausea, majority of the students 36 (90%) not having vomiting, majority of the students 37 (92.5%) not having changes in bowel and bladder pattern, most of the students 34 (85%) not having fainting, more than half of the students 25 (62.5%) not having painful breast, more than half of the students 28 (70%) not having abdominal bloating, half of the students 20 (50%) had joint pain, more than half of the students 31 (77.5%) not having urinary frequency, more than half of the students 26 (65%) not having dizziness.

In psychological symptoms reveals among 40 students, most of the students 38 (95%) not having menstrual migraines, more than half of the students 27 (67.5%) not having depression, half of the students 20 (50%) had irritability/easily agitated, more than half of the students 23 (57.5%) not having rapid mood changes, more than half of the students 26 (65%) had poor concentration, more than half of the students 23 (57.5%) not having anxiety, more than half of the students 37 (92.5%) not having changes in bowel and bladder pattern, most of the students 29 (72.5%) not having insomnia, majority of the students 36 (90%) not having hypersomnia, majority of the students 38 (95%) not having food craving, more than half of the students 27 (67.5%) had tension/nervousness.

Pain intensity by using numerical pain rating scale reveals among 40 students, more than half of the students 23 (57.5%) had mild pain and less than half of the students 17 (42.5%) had moderate pain.

Table 4.3.1

Pretest degree of primary dysmenorrhoea among adolescent girls n= 40

S. No	Dysmenorrhoea Symptoms	No		Mild		Moderate		Severe	
		f	%	f	%	f	%	f	%
1.	General information	18	45	20	50	2	5	-	-
2.	Physiological symptoms	3	7.5	37	92.5	-	-	-	-
3.	Psychological symptoms	17	42.5	22	55	1	2.5	-	-
4.	Pain intensity with Numerical pain rating scale	25	62.5	15	37.5	-	-	-	-

Table 4.3.1 pretest reveals that among 40 students, half of the students 20 (50%) mildly affected in their daily activities and academic performance, majority of the students 37 (92.5%) had mild physiological symptoms, more than half of the students 22 (55%) had mild psychological symptoms, some of the students 15 (37.5%) had mild pain assessed by numerical pain rating scale.

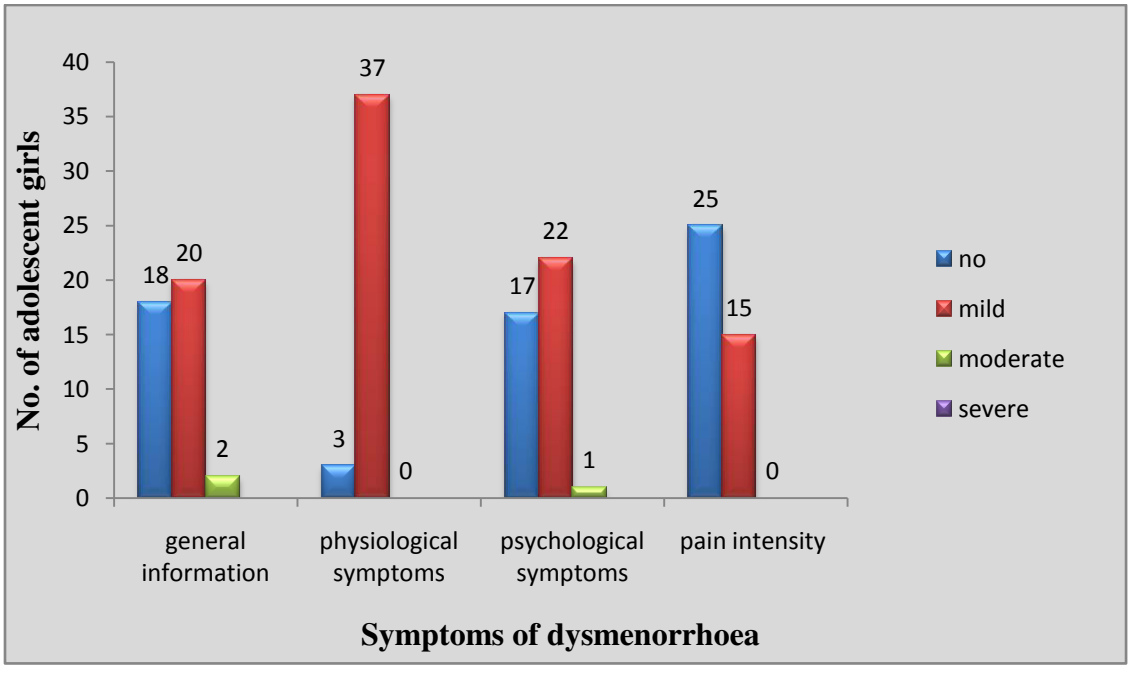

Figure 4.3.1 Bar diagram shows pretest degree of primary dysmenorrhoea symptoms among adolescent girls

SECTION 4.4: Effectiveness of Aerobic Exercise on primary dysmenorrhoea among adolescent girls.

H_0: There will not be a significant difference in the mean pre-test and mean post-test degree of primary dysmenorrhoea among adolescent girls, after aerobic exercise.

Table 4.4.1

Comparison of Mean and Standard deviation of Degree of Primary Dysmenorrhoea Symptoms Between Pre Test and Post Test I Scores among Adolescent Girls Using Paired 't' Test.

n=40

S.No	Dysmenorrhoea symptoms	Pre test		Posttest I		Calculated 't' value	Tabulated value
		Mean	SD	Mean	SD		
1	General characteristics	21.3	5.32	18.73	5.24	2.36*	1.69
2	Physiological symptoms	81.73	10.41	73.2	9.2	4.29*	1.69
3	Psychological symptoms	58.25	9.88	55.43	9.1	2.15*	1.69
4	Pain intensity by numerical pain rating scale	9.13	1.97	7.3	1.8	5.45*	1.69

Note: * - significant at the level of $p<0.05$

Table 4.4.1 describes that calculated 't' value was significant at $p<0.05$ level. So null hypothesis was rejected and research hypothesis was accepted. This showed that there was a significant difference between pretest and posttest I mean score of general characteristics, physiological symptoms, psychological symptoms, and pain intensity by numerical pain rating scale. Hence it was concluded that the aerobic exercise significantly helps to reduce the primary dysmenorrhoea symptoms.

Table 4.4.2

Comparison of Mean and Standard deviation of Degree of Primary Dysmenorrhoea Symptoms Between Pre Test and Post Test II Scores among Adolescent Girls Using Paired 't' test

n=40

S.No	Dysmenorrhoea symptoms	Pretest		Posttest II		Calculated 't' value	Tabulated value
		Mean	SD	Mean	SD		
1	General characteristics	21.3	5.32	15.93	2.2	6.43*	1.69
2	Physiological symptoms	81.73	10.41	66.4	4.48	8.2*	1.69
3	Psychological symptoms	58.25	9.88	50.7	2.04	4.63*	1.69
4	Pain intensity by numerical pain rating scale	9.13	1.97	5.6	1.09	9.46*	1.69

Note: * - significant at the level of $p<0.05$

Table 4.4.2 describes that calculated 't' value was significant at $p<0.05$ level. So null hypothesis was rejected and research hypothesis was accepted. This showed that there was a significant difference between pretest and posttest II mean score of general characteristics, physiological symptoms, psychological symptoms, and pain intensity by numerical pain rating scale. Hence it was concluded that the aerobic exercise significantly helps to reduce the primary dysmenorrhoea symptoms.

Table 4.4.3

Comparison of Mean and Standard deviation of Degree of Primary Dysmenorrhoea Symptoms Between Post Test I and Post Test II Scores among Adolescent Girls Using Paired 't' Test

n=40

S.NO	Dysmenorrhoea symptoms	Posttest I		Posttest II		Calculated 't' value	Tabulated value
		Mean	SD	Mean	SD		
1	General characteristics	18.73	5.24	15.93	2.2	4.06*	1.69
2	Physiological symptoms	73.2	9.2	66.4	4.48	5.42*	1.69
3	Psychological symptoms	55.43	9.1	50.7	2.04	3.43*	1.69
4	Pain intensity by numerical pain rating scale	7.3	1.8	5.6	1.09	2.8*	1.69

Note: * - significant at the level of $p<0.05$

Table 4.4.3 describes that calculated 't' value was significant at $p<0.05$ level. So null hypothesis was rejected and research hypothesis was accepted. This showed that there was a significant difference between posttest I and posttest II mean score of general characteristics, physiological symptoms, psychological symptoms, and pain intensity by numerical pain rating scale. Hence it was concluded that the aerobic exercise significantly helps to reduce the primary dysmenorrhoea symptoms.

Table 4.4

Effectiveness of Aerobic Exercise on primary dysmenorrhoea symptoms among adolescent girls

n=40

S.no	Dysmenorrhoea symptoms	PRE TEST								POST TEST I								POST TEST II							
		Not at all		Mild		Moderate		Severe		Not at all		Mild		Moderate		Severe		Not at all		Mild		Moderate		Severe	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
1.	General characteristics	18	45	20	50	2	5	-	-	29	72.5	11	27.5	-	-	-	-	36	90	4	10	-	-	-	-
2.	Physiological symptoms	3	7.5	37	92.5	-	-	-	-	27	67.5	13	32.5	-	-	-	-	36	90	4	10	-	-	-	-
3.	Psychological symptoms	17	42.5	22	55	1	2.5	-	-	32	80	8	20	-	-	-	-	38	95	2	5	-	-	-	-
4.	Pain intensity with Numerical pain rating scale	25	62.5	15	37.5	-	-	-	-	33	82.5	7	17.5	-	-	-	-	39	97.5	1	2.5	-	-	-	-

Table 4.4 Posttest I revealed that among 40 students, more than half of the students 29 (72.5%) was not affected in their daily activities, and posttest II majority of the students 36 (90%) was not affected in their daily activities. Posttest I among 40 students, more than half of the students 27 (67.5%) had no physiological symptoms, and posttest II majority of the students 36 (90%) had no physiological symptoms.

Posttest I revealed that among 40 students, most of the students 32 (80%) had no psychological symptoms, and posttest II majority of the students 38 (95%) had no psychological symptoms, Posttest I among 40 students, majority of the students 33 (82.5%) had no pain, posttest II most of the students 39 (97.5%) had no pain. Hence it was concluded that the aerobic exercise was effective in reducing the primary dysmenorrhoea symptoms.

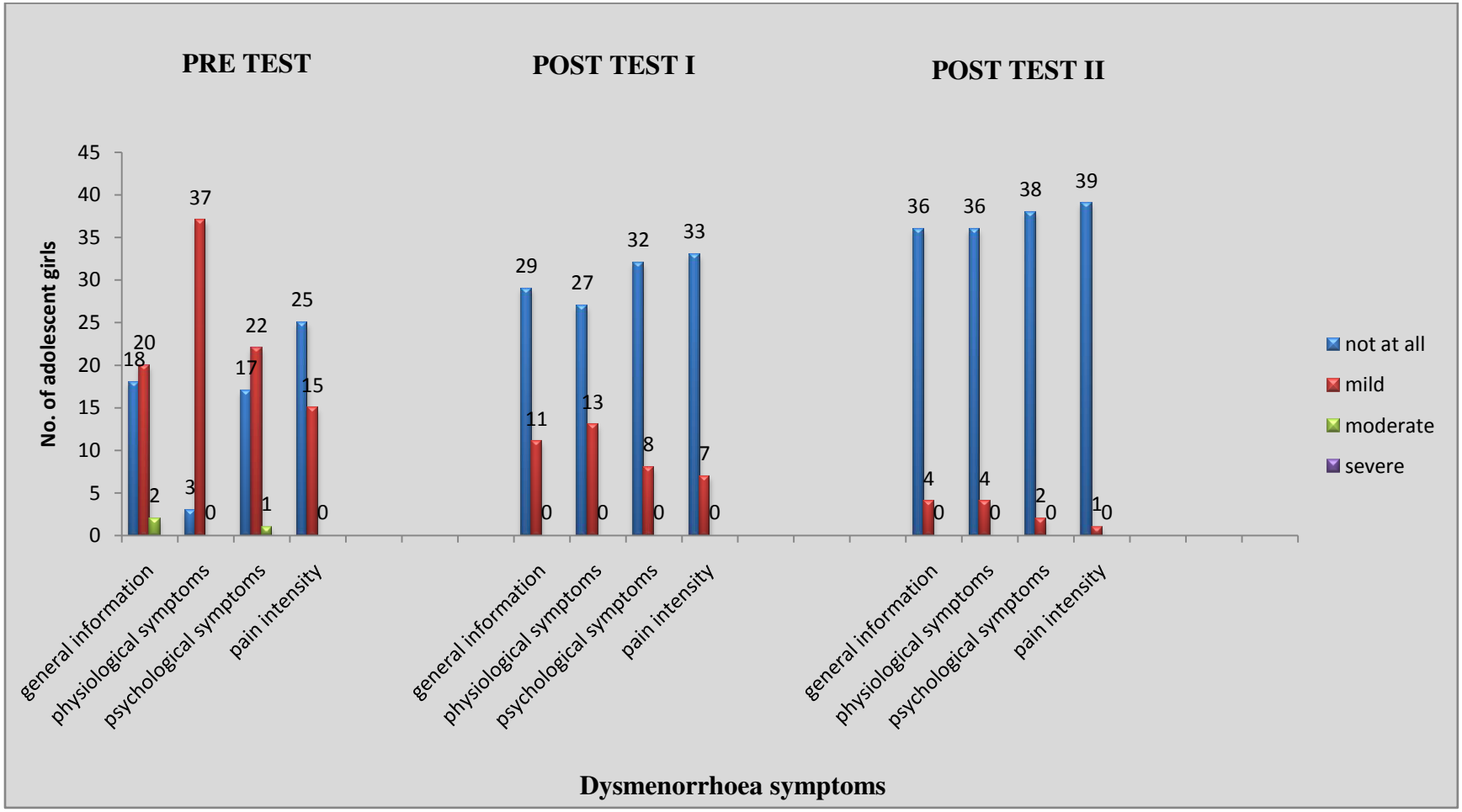

Figure 4.4 Bar diagram shows Effectiveness of Aerobic Exercise on primary dysmenorrhoea symptoms among adolescent girls

SECTION 4.5: Correlation between the menstrual characteristics with menstrual symptoms among adolescent girls.

H_0: There will not be a significant correlation between the menstrual characteristics with menstrual symptoms among adolescent girls.

Table 4.5

Correlation between the menstrual characteristics with menstrual symptoms among adolescent girls

n= 40

S. No	Variables	Mean value	SD	'r' value	'p' value
1	Age at menarche	2.275	5.5	0.7 *	0.334
2	Duration of menstrual cycle	2.25	6	0.32	0.334
3	Number of days of menstruation	2.325	11.1	-0.08	0.334
4	Characteristics of bleeding	1.5	12	0.87*	0.334

Note: * - significant at the level of $p<0.05$

Table 4.5 describes the correlation between the menstrual characteristics with menstrual symptoms among adolescent girls. r=0.7 for age at menarche was found to be positive correlation it betokens the early age of attained menarche having more influence on primary dysmenorrhoea symptoms, r=0.87 for characteristics of bleeding was found to be positive correlation it betokens the blood with clots during menstruation having more influence on primary dysmenorrhoea symptoms. There was no correlation in the duration of menstrual cycle (r=0.32) and number of days of menstruation (r=-0.08). So null hypothesis was rejected. There is correlation between some of the menstrual characteristics like early age of attained menarche and blood with clots during menstruation increasing the primary dysmenorrhoea symptoms.

SECTION 4.6: Association between selected demographic variables and pretest degree of primary dysmenorrhoea among adolescent girls.

H_0: There will not be a significant association between the pretest degree of primary dysmenorrhoea and selected demographic variables among adolescent girls, before intervention.

Table 4.6

Association between the pretest degree of primary dysmenorrhoea with selected demographic variables among adolescent girls. n=40

Demographic variables	No (1-27)		Mild (28-54)		Moderate (55-81)		Severe (82-108)		D.f	χ^2 value	Tabulated value
	f	%	f	%	f	%	f	%			
Age											
18 years	-	-	14	35	-	-	-	-	1	0.553	3.841 (NS)
19 years	-	-	25	62.5	1	2.5	-	-			
Education											
B. Sc nursing II year	-	-	21	52.5	-	-	-	-	1	1.31	3.841 (NS)
B.sc nursing III year	-	-	18	45	1	2.5					
Type of family											
Nuclear family	-	-	36	90	1	2.5			1	0.085	3.841 (NS)
Joint family	-	-	3	7.5	-	-	-	-			
Extended family	-	-	-	-	-		-	-			
Family income											
Below 10,000	-	-	7	17.5	-	-	-	-	3	4.67	7.81 (NS)
11,000-30,000			21	52.5	-	-					
31,000-50,000	-	-	6	15	1	2.5	-	-			
Above 51,000	-	-	5	12.5	-	-	-	-			
Family h/o dysmenorrhoea											
Yes	-	-	13	32.5	-	-	-	-	1	0.493	3.841 (NS)
No	-	-	26	65	1	2.5	-	-			

Demographic variables	No (1-27)		Mild (28-54)		Moderate (55-81)		Severe (82-108)		D.f	χ^2 value	Tabulated value
	f	%	f	%	f	%	f	%			
Age at menarche											
<12 years	-	-	-	-	-	-	-	-			
12-13 years	-	-	26	65	2	5	-	-	1	0.8467	3.841 (NS)
14-15 years	-	-	10	25	2	5	-	-			
>15 years	-	-	-	-	-	-	-	-			
Duration of menstrual cycle											
15-20 days cycle	-	-	-	-	-	-	-	-			
21-28 days cycle	-	-	28	70	2	5	-	-	1	1.481	3.841 (NS)
29-35 days cycle	-	-	8	20	2	5	-	-			
Number of days of menstruation											
<3 days	-	-	2	5	-	-	-	-			
3-4 days	-	-	22	55	3	7.5	-	-	2	0.4102	5.99 (NS)
5-6 days	-	-	12	30	1	2.5	-	-			
>6 days	-	-	-	-	-	-	-	-			
Characteristics of bleeding											
Only blood	-	-	19	47.5	-	-	-	-			
Blood with clots	-	-	17	42.5	3	7.5	-	-	2	3.25	5.99 (NS)
Periodic spotting	-	-	1	2.5	-	-	-	-			
Scanty flow	-	-	-	-	-	-	-	-			

Note: * - significant at the level of p<0.05NS – Non significant

Table 4.5 revealed that there was no significant association between the level of dysmenorrhoea and selected demographic variables like age, education, type of family, family income and family history of dysmenorrhoea, age at menarche, duration of menstrual cycle, number of days of menstruation, and characteristics of bleeding. So null hypothesis was accepted. This indicates that these demographic variables had not influenced the degree of primary dysmenorrhoea among adolescent girls.

CHAPTER V

RESULTS AND DISCUSSION

This chapter presents a detailed discussion based on the major objectives, corresponding findings and observation during the conduct of the study. This study was conducted to assess the effectiveness of aerobic exercise in reduction of primary dysmenorrhoea among adolescent girls. This study finding is compared with the findings and observation of similar studies.

Report of the prevalence of dysmenorrhoea has varied over the years but it estimated that around 70% adolescent girls are experienced with dysmenorrhoea which affects their daily activities and experienced with some of the physiological and psychological symptoms.

5.1 Adolescent girls according to demographic variables and primary dysmenorrhoea symptoms:

Age of the adolescent girls experienced with dysmenorrhoea ranged from a minimum of 12 years to a maximum of 19 years. The present study shows that 15 students (37.5%) in the age group of 18 years, and 25 students (62.5%) in the age group of 19 years. 13 students (32.5%) were having the family history of dysmenorrhoea. These findings are similar to another study on dysmenorrhoea among adolescent girls-characteristics and symptoms experienced during menstruation, which showed that among 233 adolescent girls the prevalence of dysmenorrhoea increased with age (39% of 12 years old and 72% in 17 years old), 60 adolescent girls (74.1 %) are having family history of dysmenorrhoea. More recent studies have reported similarly high prevalence rates of dysmenorrhoea (55-85%) among adolescent girls, various studies in India revealed that prevalence of dysmenorrhoea varies from 33% to 79.67%. **(Strinić et al., 2003).**

5.2 Distribution of adolescent girls according to the menstrual profile and management of primary dysmenorrhoea:

The present study shows that among 40 students, 28 students (70%) attained menarche at the age of 12-13 years and 12 students (30%) attained menarche at the age of 14-15 years. Most of the students 30 (75%) having 21-28 days duration of menstrual cycle. Most of the students 25 (62.5%) had 3-4 days of menstruation. Most of the students 27 (67.5%) experienced with dysmenorrhoea on 1st day of menstruation. This finding are similar to another study which showed that among 233 adolescent girls, majority of the adolescent girls 146 (62.7%) attained menarche at the age of 12-13 years and in that most of the adolescent girls 125 (53.6%) are having a menstrual cycle of 21-28 days duration, most of the adolescent girls 135 (57.9%) are having a menstruation for 5-6 days in a month most of the adolescent girls 68 (46.6%) are having dysmenorrhoea from their first menstruation onwards, most of the adolescent girls 66 (45.2%) are having severe pain during their first day of menstruation. **(Khyrunnisa B., 2012).**

Management of primary dysmenorrhoea:

The present study shows that among 40 students, 4 students (10%) were taken massage to relieve from pain, 3 students (7.5%) were taken hot/cold application to relieve from pain, and 21 students (52.5%) were taken bed rest to relieve from pain. This finding are similar to another study which showed that the many young girls with dysmenorrhoea are using often ineffective, non-pharmacological methods to relieve their symptoms such as heat, rest or distraction to treat dysmenorrhoea (98%). **(Campbell., 1999).**

5.3 Assessment of degree of primary dysmenorrhoea symptoms among adolescent girls

5.3.1 General characteristics:

Pretest revealed that among 40 students, reveals that among 40 students, majority of the students 36 (90%) had 1-4 hours of pain during menstruation, more than half of the students 24 (60%) interrupted in their daily activities, more than half of the students 25 (62.5%) had interrupted in their academic performance. This finding are similar to another study on dysmenorrhoea among adolescent girls-characteristics and symptoms experienced

during menstruation, which showed that among 233 adolescent girls dysmenorrhoea affects the studies of most of the adolescent girls 53 (36.3%), 66 students (44.5%) were affected by dysmenorrhoea in their daily activities and 57 students (39%) having disturbed sleeping pattern. **(Shabnam O., 2012)**

5.3.2 Physiological symptoms:

Pretest revealed that among 40 students, 3 students (7.5%) had no physiological symptoms, 37 students (92.5%) had mild physiological symptoms. Posttest I revealed that among 40 students, 27 students (67.5%) had no physiological symptoms, 13 students (32.5%) had mild physiological symptoms and posttest II revealed that among 40 students, 36 students (90%) had no physiological symptoms, 4 students (10%) had mild physiological symptoms. These findings are similar to study on frequency of dysmenorrhoea, its impact and management strategies adopted by medical students. Which showed that among 146 adolescent girls between the age group of 17-22 years, 110 (75.34%) students having tiredness, 106 (72.60%) students having back pain, and 97 (66.43%) students having abdominal bloating,10(6.84%) students having Diarrhea, 16 students (10.9%) having nausea, and16 students (10.9%) having vomiting symptoms associated with dysmenorrhoea. **(Elizabeth K., 2010)**

5.3.3 Psychological symptoms:

Pretest revealed that among 40 students, 17 students (42.5%) had no psychological symptoms, 22 students (55%) had mild psychological symptoms, and 1 student (2.5%) had moderate psychological symptoms. Posttest I revealed that among 40 students, 32 students (80%) had no psychological symptoms, 8 students (20%) had mild psychological symptoms and posttest II revealed that among 40 students, 38 students (95%) had no psychological symptoms, 2 students (5%) had mild psychological symptoms. This finding are similar to study on epidemiology of dysmenorrhoea among adolescent girls in Assiut City, Egypt, which showed that among 119 students, 64 students (53.8%) were having reduced Levels of confidence at work, 21 students (17.6%) were having Poor Work satisfaction, Head ache was present in 102 (85.7%), Mood disturbance were present in 96

(80.6%), and 71 students (59.7%) were having Loss of Concentration level. **(Weissmen., 2004)**

5.3.4 Pain intensity according to Numerical pain rating scale:

Pretest revealed that among 40 students, 25 students (62.5%) had no pain, 15 students (37.5%) had mild pain. Posttest I revealed that among 40 students, 33 students (82.5%) had no pain, 7 students (17.5%) had mild pain and posttest II revealed that among 40 students, 39 students (97.5%) had no pain, and 1 student (2.5%) is had mild pain. This finding are supported by another study which showed that before exercise, the students' pain level was mild (7%), moderate (53%) and severe pain (40%). After exercise, it showed changes in pain level; mild pain was (73.33%), moderate pain was (26.67%) and no one was in severe pain. **(Martchelina., (2011).**

5.4 Effectiveness of aerobic exercise on primary dysmenorrhoea symptoms among adolescent girls by using paired 't' test

Posttest I revealed that among 40 students, more than half of the students 29 (72.5%) was not affected in their daily activities, and posttest II majority of the students 36 (90%) was not affected in their daily activities. Posttest I more than half of the students 27 (67.5%) had no physiological symptoms, and posttest II majority of the students 36 (90%) had no physiological symptoms, Posttest I most of the students 32 (80%) had no psychological symptoms, and posttest II majority of the students 38 (95%) had no psychological symptoms, Posttest I most of the students 33 (82.5%) had no pain, posttest II majority of the students 39 (97.5%) had no pain. This finding are similar to another study on effect of aerobic exercise on primary dysmenorrhoea students 15-17 years among 60 non-athletes, which showed that the average difference between pre-test and post-test psychological symptoms (P<0.0001), Health (P<0.0001), pain (P<0.0001) in the aerobic exercise group and the control group was significant Psychiatric symptoms (P=0.345), physical (P=0.462), intensity (p<0/0001) was not significant. The results Comparison between aerobic exercise and control groups showed that psychiatric symptoms (p<0/0001) and physical (p<0/0001), intensity (p<0/0001) was significantly reduced. The results of this study showed that eight weeks of aerobic exercise can reduce the symptoms

of physical and mental pain among 15-17 years old students with primary dysmenorrhoea. **(Chantler et al., 2009).**

5.5 Correlation between the menstrual characteristics with menstrual symptoms among adolescent girls

The present study results shows that the correlation between the menstrual characteristics with menstrual symptoms among adolescent girls. r=0.7 for age at menarche was found to be positive correlation it betokens the early age of attained menarche having more influence on primary dysmenorrhoea symptoms, r=0.87 for characteristics of bleeding was found to be positive correlation it betokens the blood with clots during menstruation having more influence on primary dysmenorrhoea symptoms. There was no correlation in the duration of menstrual cycle (r=0.32) and number of days of menstruation (r=-0.08). This finding are similar to another study on menstrual characteristics and prevalence of dysmenorrhoea in college going girls the results which showed that dysmenorrhea is found to be highly prevalent among college going girls. Family history (r=0.52), bleeding duration (r=0.78) and presence of clots (r=0.85) were significantly correlate with the dysmenorrhoea symptoms. **(Nazia Nagori Noor., 2015)**

5.6 Association between the pretest degree of primary dysmenorrhoea symptoms with selected demographic variables

The present study results shows that the chi square value was less than the table value for selected demographic variables at the level of $p<0.05$. Thus it concludes the selected demographic variables like age, education, type of family, family income and family history of dysmenorrhoea, age at menarche, duration of menstrual cycle, number of days of menstruation, and characteristics of bleeding does not influence the symptoms of dysmenorrhoea among adolescent girls. Hence the demographic variable has no association with the dysmenorrhoea symptoms. It is contradictory with another study on dysmenorrhoea among adolescent girls-characteristics and symptoms experienced during menstruation showed an association between family history of dysmenorrhoea (z=16.673, p-value=0.001) and there is no association between age in years, onset of menarche, duration of menstrual flow, dietary pattern. **(Nayana S George., 2014).**

CHAPTER VI

SUMMARY AND CONCLUSION

Many sports are a viable alternative to reduce dysmenorrhoea, one of them is aerobics. By doing aerobics, it increases lung efficiency, so that, when women do aerobics routinely then they can store double oxygen per minute which can bring more oxygen even during blood vessel constriction that reducing pain. Physical training (aerobics) can also produce the hormone endorphin. Endorphins produced in the brain and spinal cord. This hormone can cause a sense of comfort and increasing endorphin levels in the body to relieve pain during contractions. The present study is a study to assess the effectiveness of aerobic exercise in reduction of primary dysmenorrhoea among adolescent girls in in PSG College of Nursing. The main objective is to identify the level of dysmenorrhoea among adolescent girls and to assess the effectiveness of aerobic exercise in reduction of primary dysmenorrhoea among adolescent girls. The wide literature search also helped in selection of appropriate conceptual planning, developing frame work and research plan.

The research design used in this study was pre experimental, one group pretest posttest design. Samples were selected from II year & III year B. Sc (N) students at PSG College of Nursing, Coimbatore. The sampling technique used in this study was purposive sampling technique. The sample size was 40. The data were collected after ethical approval. Those who are fulfilled the inclusion criteria were selected for the study. Menstrual symptoms assessment questionnaire and numerical pain rating scale was used to assess the dysmenorrhoea among adolescent girls. Pretest level of pain was assessed during menstruation for 5 days using menstrual symptoms assessment questionnaire and numerical pain rating scale. Aerobic exercise was given an alternative days to the dysmenorrhoea students in the Seminar Hall of PSG College of Nursing. The exercise was given for 40 minutes up to two consecutive menstrual cycles. Posttest was done during menstruation up to two consecutive menstrual cycles for five days.

The data was collected through interview method. Both descriptive and inferential statistics were used for analysis of the data. Paired‘t’ test was used to evaluate the effectiveness of aerobic exercise in reduction of primary dysmenorrhoea. Chi square test

was used to find out the association between the pretest degree of dysmenorrhoea and selected demographic variables.

6.1 Major findings of the study:

- Among 40 students, most of them 25 (62.5%) were in the age group of 19 years, 21 students (52.5%) were B. Sc (N) II year, 37 students (92.5%) belongs to nuclear family, 27 students (67.5%) not having the family history of dysmenorrhoea.
- Among 40 students, 28 students (70%) attained menarche at 12-13 years of age, 30 students (75%) had 21-28 days of menstrual cycle.
- Pretest revealed that among 40 students, majority of the students 36 (90%) had 1-4 hours of pain during menstruation, more than half of the students 24 (60%) interrupted in their daily activities, more than half of the students 25 (62.5%) had interrupted in their academic performance. Posttest I more than half of the students 29 (72.5%) was not affected in their daily activities, and posttest II majority of the students 36 (90%) was not affected in their daily activities
- Pretest revealed that among 40 students, 3 students (7.5%) had no physiological symptoms, and 37 students (92.5%) had mild physiological symptoms. Posttest I, 27 students (67.5%) had no physiological symptoms, 13 students (32.5%) had mild physiological symptoms and posttest II, 36 students (90%) had no physiological symptoms, 4 students (10%) had mild physiological symptoms.
- Pretest revealed that among 40 students, 17 students (42.5%) had no psychological symptoms, 22 students (55%) had mild psychological symptoms, and 1 student (2.5%) had moderate psychological symptoms. Posttest I, 32 students (80%) had no psychological symptoms, 8 students (20%) had mild psychological symptoms and posttest II, 38 students (95%) had no psychological symptoms, 2 students (5%) had mild psychological symptoms.
- Pretest revealed that among 40 students, 25 students (62.5%) had no pain, 15 students (37.5%) had mild pain. Posttest I, 33 students (82.5%) had no pain, 7 students (17.5%) had mild pain and posttest II, 39 students (97.5%) had no pain, and 1 student (2.5%) had mild pain.

- There was a significant improvement in the mean score of general characteristics among adolescent girls with primary dysmenorrhoea after aerobic exercise ($t=6.43$, $p<0.05$).
- There was a significant improvement in the mean score of physiological symptoms among adolescent girls with primary dysmenorrhoea after aerobic exercise ($t=8.2$, $p<0.05$).
- There was a significant improvement in the mean score of psychological symptoms among adolescent girls with primary dysmenorrhoea after aerobic exercise ($t=4.63$, $p<0.05$).
- There was a significant improvement in the mean score of pain intensity among adolescent girls with primary dysmenorrhoea after aerobic exercise ($t=9.46$, $p<0.05$).
- The correlation between the menstrual characteristics with menstrual symptoms among adolescent girls. $r=0.7$ for age at menarche was found to be positive correlation it betokens the early age of attained menarche having more influence on primary dysmenorrhoea symptoms, $r=0.87$ for characteristics of bleeding was found to be positive correlation it betokens the blood with clots during menstruation having more influence on primary dysmenorrhoea symptoms. There was no correlation in the duration of menstrual cycle ($r=0.32$) and number of days of menstruation ($r=-0.08$).
- There was no association between the selected demographic variables and primary dysmenorrhoea.

6.2 Conclusion:

Dysmenorrhoea is a very common problem among adolescent girls and they experience a number of physical, and psychological symptoms associated with it. Adolescent girls, almost silently suffer the pain by dysmenorrhoea and the symptoms associated with it. Aerobic exercise was aone of the effective, inexpensive and non-pharmacological measure to reduce the primary dysmenorrhoea symptoms among adolescent girls. The study concluded that aerobic exercise as physical activity has significant in reducing the symptoms of primary dysmenorrhoea during menstruation among adolescent girls.

6.3 Nursing implications:

The present study has implications for nursing practice, nursing education, nursing administration and nursing research.

6.3.1Nursing practice:

- Nurse can assess the primary dysmenorrhoea using numerical pain rating scale on daily basis.
- Nurse can involve in educating adolescent girls with primary dysmenorrhoea and their family members on the importance of aerobic exercise in reducing primary dysmenorrhoea.

6.3.2 Nursing education:

- Nursing curriculum is an area teaches about lot of pharmacological management for various diseases. Non pharmacological management could also be incorporated in the area of dysmenorrhoea and make the adolescent girls prefer for non pharmacological management to relive from primary dysmenorrhoea.

6.3.3 Nursing managers:

- Continuous education among nursing faculties will help to promote and update their knowledge on administration of aerobic exercise for reducing primary dysmenorrhoea among adolescent girls.

6.3.4 Nursing research:

- Randomized clinical trials could be under taken so that the validity of the results can be increased and it can be incorporated into the evidence based nursing practice.

6.4 Limitations:

- The study was conducted among only 17-19 years of adolescent girls.
- The sample size of the study was small.
- The study was limited to only one setting.

6.5 Recommendations for future study:

- The similar study can be conducted in large group of population
- The similar study could be conducted in school setting.
- A study can be conducted to assess the effectiveness of aerobic exercise in reducing primary dysmenorrhoea among adults age group of 22- 35 years.
- A comparative study can be conducted to assess the effectiveness of aerobic exercise and pelvic rocking exercise in reduction of primary dysmenorrhoea among adolescent girls.

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ANNEXURE I

From

Ms. K. Sindhuja
M. Sc Nursing I Year
PSG College of Nursing
Peelamedu, Coimbatore - 04

To

Dr. G. Malarvizhi
Principal Incharge
PSG College of Nursing
Coimbatore – 4

Respected Madem ,

Sub: Seeking permission to carry out the study among

Nursing students at PSG College of Nursing, Coimbatore.

I Ms. K. Sindhuja, I year M. Sc Nursing student is interested in doing this study. **"A Study To Assess The Effectiveness Of Aerobic Exercise In Reduction Of Primary Dysmenorrhoea Among Adolescent Girls In PSG College Of Nursing, Coimbatore".** Kindly grant me permission to carry out the study.

Thank you,

Date: 21.07.2016

Place: Coimbatore

Yours sincerely

Ms. K. Sindhuja
I year M. Sc Nursing

Signature of the Principal In charge

From

K. Sindhuja

M. Sc Nursing II Year

PSG College of Nursing

Peelamedu, Coimbatore - 04

To

Dr. G. Malarvizhi

Principal in charge

PSG College of Nursing

Peelamedu, Coimbatore - 04

Respected Madem,

Sub: Seeking permission to carry out the study among Nursing students at PSG College of Nursing, Coimbatore.

I Ms. K. Sindhuja, II year M. Sc Nursing student is interested in doing this study. I am planning to carry out my study in the **PSG college of Nursing seminar hall at 5.00 pm – 6.00 pm from the month of February to April.** So kindly grant me permission to utilize the seminar hall for my research purpose as mention above time.

Thank you,

Date: 25/1/17

Place: Coimbatore

Yours sincerely

K. Sindhuja

II year M. Sc Nursing

Signature of the subject guide:

Signature of the research guide:

ANNEXURE II

PSG Institute of Medical Sciences & Research
Institutional Human Ethics Committee
Recognized by The Strategic Initiative for Developing Capacity in Ethical Review (SIDCER)
POST BOX NO. 1674, PEELAMEDU, COIMBATORE 641 004, TAMIL NADU, INDIA
Phone : 91 422 - 2598822, 2570170, Fax : 91 422 - 2594400, Email : ihec@psgimsr.ac.in

To
Ms K Sindhuja
I M Sc Nursing
Guide/s: Mrs B Sreerenjini / Dr G Malarvizhi
PSG College of Nursing
Coimbatore

Ref: Project No.16/258

Date: September 13, 2016

Dear Ms Sindhuja,

Institutional Human Ethics Committee, PSG IMS&R reviewed and discussed your application dated 27.07.2016 to conduct the research study entitled *"A study to assess the effectiveness of aerobic exercise in reduction of primary dysmenorrhoea among adolescent girls in PSG College of Nursing, Coimbatore"* during the IHEC review meetings held on 24.08.2016.

The following documents were reviewed and approved:

1. Project Submission form
2. Study protocol (Version 1 dated 27.07.2016)
3. Informed consent forms (Version 1 dated 27.07.2016)
4. Data collection tool (Version 1 dated 27.07.2016)
5. Permission letter from the Dean and Head of the Institution
6. Current CVs of Principal investigator, Co-investigators
7. Budget

The following members of the Institutional Human Ethics Committee (IHEC) were present at the meeting held on 24.08.2016 at Research Conference Room, PSG IMS & R between 02.30 am and 05.00 pm:

Sl. No.	Name of the Member of IHEC	Qualification	Area of Expertise	Gender	Affiliation to the Institution Yes/No	Present at the meeting Yes/No
1	Mrs Y Ashraf	MPT	Physiotherapy	Female	Yes	No
2	Dr. S. Bhuvaneshwari (Member-Secretary, IHEC)	MD	Clinical Pharmacology	Female	Yes	Yes
3	Mr Gowpathy Velappan	BA., BL	Legal Advisor	Male	No	Yes
4	Dr A Jayavardhana	MD	Clinician (Paediatrics)	Male	Yes	Yes
5	Mr P Karuppuchamy	M Phil in PSW	Social Scientist	Male	Yes	Yes

6	Dr G Malarvizhi	M Sc, Ph D	Nursing	Female	Yes	Yes
7	Mr. R. Nandakumar (Chairperson, IHEC)	BA., BL	Legal Expert	Male	No	Yes
8	Dr. Parag K Shah	DNB	Clinician (Ophthalmology)	Male	No	Yes
9	Dr. G. Rajendiran	DM	Clinician (Cardiology)	Male	Yes	No
10	Mrs P Rama	M Pharm	Non-Medical (Pharmacy)	Female	Yes	Yes
11	Dr. Seetha Panicker	MD	Clinician (Obstetrics & Gynaecology)	Female	Yes	Yes
12	Dr. S. Shanthakumari	MD	Pathology, Ethicist	Female	Yes	No
13	Dr. Sudha Ramalingam (Alternate Member-Secretary, IHEC)	MD	Public Health, Epidemiology, Genetics, Ethicist	Female	Yes	Yes
14	Mrs. Swasthika Soundararaj	MBA	Lay person	Female	No	Yes
15	Dr. D. Vijaya	M Sc, Ph D	Basic Medical Sciences (Biochemistry)	Female	Yes	Yes

The study is approved in its presented form. The decision was arrived at through consensus. Neither PI nor any of proposed study team members were present during the decision making of the IHEC. The IHEC functions in accordance with the ICH-GCP/ICMR/Schedule Y guidelines. The approval is valid until one year from the date of sanction. You may make a written request for renewal / extension of the validity, along with the submission of status report as decided by the IHEC.

Following points must be noted:

1. IHEC should be informed of the date of initiation of the study
2. Status report of the study should be submitted to the IHEC every 12 months
3. PI and other investigators should co-operate fully with IHEC, who will monitor the trial from time to time
4. At the time of PI's retirement/intention to leave the institute, study responsibility should be transferred to a colleague after obtaining clearance from HOD, Status report, including accounts details should be submitted to IHEC and extramural sponsors
5. In case of any new information or any SAE, which could affect any study, must be informed to IHEC and sponsors. The PI should report SAEs occurred for IHEC approved studies within 7 days of the occurrence of the SAE. If the SAE is 'Death', the IHEC Secretariat will receive the SAE reporting form within 24 hours of the occurrence
6. In the event of any protocol amendments, IHEC must be informed and the amendments should be highlighted in clear terms as follows:
    a. The exact alteration/amendment should be specified and indicated where the amendment occurred in the original project. (Page no. Clause no. etc.)
    b. Alteration in the budgetary status should be clearly indicated and the revised budget form should be submitted
    c. If the amendments require a change in the consent form, the copy of revised Consent

Form should be submitted to Ethics Committee for approval

d. If the amendment demands a re-look at the toxicity or side effects to patients, the same should be documented

e. If there are any amendments in the trial design, these must be incorporated in the protocol, and other study documents. These revised documents should be submitted for approval of the IHEC and only then can they be implemented

f. Any deviation-Violation/waiver in the protocol must be informed to the IHEC within the stipulated period for review

7. Final report along with summary of findings and presentations/publications if any on closure of the study should be submitted to IHEC

Thanking You,

Yours Sincerely,

Dr S Bhuvaneshwari
Member - Secretary
Institutional Human Ethics Committee

ANNEXURE III

PSG Institute of Medical Science and Research, Coimbatore
Institutional Human Ethics Committee
INFORMED CONSENT FORMAT FOR RESEARCH PROJECTS

I Ms. K. Sindhuja carrying out a study on the topic: **A Study to Assess the Effectiveness of Aerobic Exercise on Primary Dysmenorrhoea among Adolescent Girls at Selected College, Coimbatore.**

As part of my / our research project being carried out under the aegis of the Department of: Maternity Nursing.

My research guide is: Prof. B. Sreerenjini

The justification for this study is: Now a day's dysmenorrhoea is a common problem among adolescent girls, so need for effective aerobic exercise in reduction of primary dysmenorrhoea.

The objectives of this study are:

- To assess the degree of primary dysmenorrhoea among adolescent girls
- To determine the effectiveness of aerobic exercise on primary dysmenorrhoea among adolescent girls
- To correlate the menstrual characteristic with the menstrual symptoms among adolescent girls.
- To associate the degree of primary dysmenorrhoea with selected demographic variables among adolescent girls.

Sample size: 40

Study volunteers / participants are (specify population group & age group):

Nursing Students of PSG CON, 17 – 19 Years

Location: Seminar Hall at PSG CON, Coimbatore.

I request you to kindly cooperate with me in this study. I propose collect background information and other relevant details related to this study. I will be carrying out:

Initial interview (specify approximate duration) : 30 minutes.

Data collected will be stored for a period of 3 years. I will / will not use the data as part of another study.

Health education sessions: Number of sessions: 1 Session X 18 Days. Approximate **duration** of each session: 40 minutes.

Clinical examination (Specify details and purpose): Through the screening questionnaire find out the dysmenorrhoea students, numerical rating scale used to assess the intensity of pain.

Final interview (specify approximate duration): 30 Mts.

Benefits from this study: Aerobic exercise will reduce the symptoms of primary dysmenorrhoea.

Risks involved by participating in this study: No risk.

How the **results** will be used:

1. To perform evidence based practice
2. Submission in the thesis.
3. To publish in the journals and conference presentation.

If you are uncomfortable in answering any of our questions during the course of the interview / biological sample collection, **you have the right to withdraw from the interview / study at anytime.** You have the freedom to withdraw from the study at any point of time. Kindly be assured that your refusal to participate or withdrawal at any stage, if you so decide, will not result in any form of compromise or discrimination in the services offered nor would it attract any penalty. You will continue to have access to the regular services offered to a patient. You will **NOT** be paid any remuneration for the time you spend with us for this interview / study. The information provided by you will be kept in strict confidence. Under no circumstances shall we reveal the identity of the respondent or their families to anyone. The information that we collect shall be used for approved research purposes only. You will be informed about any significant new findings - including adverse events, if any, – whether directly related to you or to other participants of this study, developed during the course of this research which may relate to your willingness to continue participation.

Consent: The above information regarding the study, has been read by me/ read to me, and has been explained to me by the investigator/s. Having understood the same, I hereby give my consent to them to interview me. I am affixing my signature / left thumb impression to indicate my consent and willingness to participate in this study (i.e., willingly abide by the project requirements).

Signature / Left thumb impression of the Study Volunteer / Legal Representative:

Signature of the Interviewer with date: Witness:

Contact number of PI: **8056521898**

Contact number of Ethics Committee Office: 0422 2570170 Extn : 5818

பூ சா கோ மருத்துவக் கல்லூரி மற்றும் ஆராய்ச்சி நிறுவனம். கோவை

மனித நெறிமுறைக் குழு

ஒப்புதல் படிவம்

தேதி:

கா.சிந்துஜா ஆகிய நான் பூ சா கோ மருத்துவக் கல்லூரியின் / மருத்துவமனையின் மகப்பேறு மருத்துவ துறையின் கீழ் வலியுடன் கூடிய மாதவிடாய்க்கு ஏரோபிக் உடற்பயிற்சி திறனுள்ளதா என்ற தலைப்பில் ஆய்வு மேற்கொள்ள உள்ளேன்.

என் ஆய்வு வழிகாட்டி : திருமதி . பேராசிரியர் . B. ஸ்ரீ ரெஞ்ஜினி

ஆய்வு மேற்கொள்வதன் அடிப்படை : வலியுடன் கூடிய மாதவிடாய் இளம்பெண்கள் மத்தியில் அதிகரித்து வருகிறது .

ஆய்வின் நோக்கம் :

1. **இளம்பெண்கள் மத்தியில் உள்ள வலியுடன் கூடிய மாதவிடாய்யை கண்டறிதல் .**
2. **ஏரோபிக் உடற்பயிற்சி திறனுள்ளதா என்பதை கண்டறிதல் .**

ஆய்வில் பங்கு பெறும் நபர்களின் எண்ணிக்கை : 40

ஆய்வில் பங்கு பெறுவோர் மற்றும் வயது : செவிலியர் மாணவிகள் 17-19
வயதிர்க்குட்பட்டவர்கள்.

ஆய்வு செய்யப்படும் முறை :

1. **கேள்வி கேட்டல் / வினா வினவுதல் (அடிப்படை தகவல்கள் குறித்து).**
2. **ஏரொபிக் உடற்பயிற்சியின் மூலம் வலியுடன் கூடிய மாதவிடாய்யினால் எற்படும் அசௌகரியங்களைக் குறைத்தல்.**

ஆய்வு மேற்கொள்ளும் இடம் : பூ சா கோ செவிலியர் கல்லூரி.

இந்த ஆய்வில் எங்களுடன் ஒத்துழைக்குமாறு கேட்டுகொள்கிறோம் .நாங்கள் சில தகவல்களை இந்த ஆய்விற்காக சேகரிக்க உள்ளோம் .

இந்த ஆய்வில் கிடைக்கும் தகவல்கள் 3 **வருடங்கள் பாதுகாக்கப்படும் . இந்த தகவல்கள் வேறு ஆய்விற்கு பயன்படுத்தப்படமாட்டாது.**

ஆய்வில் பங்கு பெறுவதால் எற்படும் பலன்கள்: ஏரோபிக் உடற்பயிற்சி வலியுடன் கூடிய மாதவிடாய்யினால் எற்படும் அசௌகரியங்களைக் குறைக்கும்.

ஆய்வில் பங்கு பெறுவதால் எற்படும் அசௌகரியங்கள் / பக்கவிளைவுகள் : ஏதுமில்லை.

ஆய்வின் முடிவுகள் எந்த முறையில் பயன்படுதப்படும் ?

1. **முதுகலைப்பட்டதிற்காக பல்கலைக்கழகத்திற்கு அனுப்பப்படும்.**
2. **செவிலியர் துறை சார்ந்த இதழ்களில் பிரசுரிக்கப்படும்.**
3. **ஆதாரப்பூர்வமான பயிர்சிக்கு அடித்தளமிடும்.**

இந்த ஆய்வின் கேள்விகளுக்கு பதிலளிப்பதில் , இரத்த மாதிரிகள் அல்லது திசு மாதிரிகள் எடுப்பதில் உங்களுக்கு ஏதெனும் அசௌகரியங்கள் இருந்தால், எந்த நேரம் வேண்டுமானாலும் ஆய்விலிருந்து விலகிக்கொள்ளும் உரிமை உங்களுக்கு உண்டு. ஆய்விலிருந்து விலகிக்கொள்வதால் உங்களுக்கு அளிக்கப்படும் சிகிச்சை முறையில் எந்த வித பாதிப்பும் இருக்காது என்று உங்களுக்கு உறுதியளிக்கிறோம். மருத்துவமனையில் நோயாளிகளுக்கு அளிக்கப்படும் சேவைகளை நீங்கள் தொடர்ந்து பெறலாம். இந்த ஆய்வில் பங்கேற்க ஒப்புக்கொள்வதால் வேறு எந்த விதமான கூடுதல் பலனும் உங்களுக்கு கிடைக்காது. நீங்கள் அளிக்கப்படும் தகவல்கள் இரகசியமாக வைக்கப்படும். ஆய்வில் பங்கேற்பவர்கள் பற்றியோ அவர்கள் குடும்பத்தை பற்றியோ எந்தத் தகவலும் எக்காரணம் கொண்டும் வெளியிடப்படாது என்று உறுதியளிக்கிறோம். நீங்கள் அளிக்கப்படும் தகவல்கள் / இரத்த மாதிரிகள் அல்லது திசு மாதிரிகள் அங்கீகரிக்கப்பட்ட ஆய்விற்கு மட்டுமே பயன்படுத்தப்படும். இந்த ஆய்வு நடைபெறும் காலத்தில் குறிப்பிடத்தகுந்த புதிய கண்டுபிடிப்புகள் அல்லது பக்க விளைவுகள் ஏதும் ஏற்பட்டால் உங்களுக்கு தெரிவிக்கப்படும். இதனால் ஆய்வில் தொடர்ந்து பங்கு பெறுவது பற்றிய உங்கள் நிலைப்பாட்டை நீங்கள் தெரிவிக்க ஏதுவாகும்.

ஆய்விற்குட்பட்டவரின் ஒப்புதல்: இந்த ஆய்வை பற்றிய மேற்கூறிய தகவல்களை நான் படித்து அறிந்து கொண்டேன் / ஆய்வாளர் படிக்க கேட்டு தெரிந்து கொண்டேன். ஆய்வினைப் பற்றி நன்றாகப் புரிந்து கொண்டு இந்த ஆய்வில் பங்கு பெற ஒப்புக்கொள்கிறேன். இந்த ஆய்வில் பங்கேற்பதற்கான எனது ஒப்புதலை கீழ் கையொப்பமிட்டு / கை ரேகை பதித்து தெரிவித்துக் கொள்கிறேன்.

பங்கேற்பாளரின் பெயர், முகவரி :

பங்கேற்பாளரின் கையொப்பம் / கை ரேகை / சட்டபூர்வ பிரதிநிதியின் கையொப்பம் :

தேதி:

ஆய்வாளரின் கையொப்பம் :

தேதி:

ஆய்வாளரின் தொலைபேசி எண்: 8056521898.

மனித நெறிமுறைக் குழு அலுவலகத்தின் தொலைபேசி எண்: 0422 2570710 Extn : **5818.**

SOP 03-V 3.0 / ANX 10-V 3.0

Institutional Human Ethics Committee

PSG Institute of Medical Sciences and Research, Coimbatore

Parental Consent Form

Title of Study: A Study to Assess the Effectiveness of Aerobic Exercise on Primary Dysmenorrhoea among Adolescent Girls at selected College, Coimbatore.

Name of the Principal Investigator: MS. K. Sindhuja

Department: M. Sc Nursing Ist Year Maternity Nursing Department.

Your daughter is invited to participate in a study of A Study to Assess the Effectiveness of Aerobic Exercise on Primary Dysmenorrhoea among Adolescent Girls at selected College, Coimbatore.

My name is MS. K.Sindhuja and I am a M. Sc Nursing Ist Year Student at PSG College Of Nursing, Coimbatore. This study is part of my partial fulfillment of M. Sc Nursing Program.

I am asking for permission to include your daughter in this study because

I expect to have 40 participants in the study.

If you allow your child to participate, myself only going to conduct the research aerobic exercise will administer to the students to see to observe the reduction in primary dysmenorrhoea.

Any information that is obtained in connection with this study and that can be identified with your daughter will remain confidential and will be disclosed only with your permission. His or her responses will not be linked to his or her name or your name in any written or verbal report of this research project.

Your decision to allow your daughter to participate will not affect your or his or her present or future relationship with PSG IMS&R or PSG Hospitals or PSG College Of Nursing. If you have any questions about the study, please ask me. If you have any questions later, call me at any time. If you have any questions or concerns about your daughter's participation in this study, call **8056521898**

You may keep a copy of this consent form.

You are making a decision about allowing your daughter to participate in this study. Your signature below indicates that you have read the information provided above and have decided to allow him or her to participate in the study. If you later decide that you wish to withdraw your permission for your daughter to participate in the study, simply tell me.

You may discontinue his or her participation at any time. *This will not affect in any way your future treatment in this hospital.*

Name of daughter:

Signature of Parent(s) or Legal Guardian with Date Signature of Investigator with Date

பூ சா கோ மருத்துவக் கல்லூரி மற்றும் ஆராய்ச்சி நிறுவனம். கோவை

மனித நெறிமுறைக் குழு

பெற்றோரின் சம்மதச் சான்று

ஆய்வின் தலைப்பு: வலியுடன் கூடிய மாதவிடாய்க்கு ஏரோபிக் உடற்பயிற்சி திறனுள்ளதா என்ற தலைப்பில் ஆய்வு மேற்கொள்ள உள்ளேன்.

ஆய்வாளரின் பெயர்: கா.சிந்துஜா

துறை: மகப்பேறு செவிலியர் துறை எம். எஸ். சி நர்சிங் முதலாம் ஆண்டு

உங்கள் மகள் இந்த ஆய்வில் பங்கு பெற வரவேற்கப்படுகிறார்.(வலியுடன் கூடிய மாதவிடாய்க்கு ஏரோபிக் உடற்பயிற்சி திறனுள்ளதா என்ற தலைப்பில் ஆய்வு மேற்கொள்ள உள்ளேன்).

எனது பெயர் கா.சிந்துஜா, நான் பூ சா கோ செவிலியர் கல்லூரியில் எம்.எஸ்.சி நர்சிங் முதலாம் ஆண்டு படித்து வருகிறேன். எனது படிப்பின் பகுதியாக இந்த ஆய்வை நான் மேற்கொள்ள வேண்டும். ஆதலால் உங்கள் மகளை இந்த ஆய்வில் பங்கு பெற அனுமதிக்குமாறு கேட்டுக்கொள்கிறேன்.

அவ்வாறு நீங்கள் அனுமதித்தால், எனது தரப்பில் மட்டுமே இந்த ஆய்வு மேற்கொள்ளப்படும். இந்த ஆய்வில் ஏரோபிக் உடற்பயிற்சி கற்று தரப்படும்.அதன் பின்பு வலியுடன் கூடிய மாதவிடாய் மாணவிகள் மத்தியில் குறைந்துள்ளதா என்பது கண்டறியப்படும்.

இந்த தகவல்கள் வேறு ஆய்விற்கு பயன்படுத்தப்படமாட்டாது. ஆய்வின் முடிவுகள் பகிர்ந்து கொள்ளப்பட மாட்டாது.

ஏதேனும் கேள்விகள் இருப்பின் எந்த நேரம் வேண்டுமானாலும் கேட்கலாம். (**8056521898**)

இந்த ஆய்வில் உங்கள் மகளை அனுமதிக்க விரும்புகிறீர்களா ஆம்/இல்லை எது வேண்டுமானாலும் கூறலாம்.உங்களுடைய விருப்பத்திற்குட்பட்டது. இது எந்த விதத்திலும் உங்கள் மகளை பாதிக்காது.

பங்கேற்பாளரின் பெயர் :

பெற்றோர்/பாதுகாவலரின் கையொப்பம் மற்றும் தேதி :

ஆய்வாளரின் கையொப்பம் மற்றும் தேதி :

SOP 03-V 3.0 / ANX 09-V 2.0

Institutional Human Ethics Committee

PSG Institute of Medical Sciences and Research, Coimbatore

Assent to be in a Research Study

For children between 7-18 years old

Why I am meeting with you?

I want to tell you about something I am doing called a research study. A research study is when researcher collects a lot of information to learn more about something related to health and disease. I am MS. K. Sindhuja doing a study to learn more about effect of aerobic exercise on primary dysmenorrhoea After I will tell you about it, I will ask if you'd like to be in this study or not.

Objectives of this study are:

- To assess the degree of primary dysmenorrhoea among adolescent girls
- To determine the effectiveness of aerobic exercise on primary dysmenorrhoea among adolescent girls
- To correlate the menstrual characteristic with the menstrual symptoms among adolescent girls.
- To associate the degree of primary dysmenorrhoea with selected demographic variables among adolescent girls.

Sample size: 40

Location: Seminar hall at PSG College of Nursing, Coimbatore.

Why I am doing this study?

I want to find out effectiveness of aerobic exercise on primary dysmenorrhoea. So I am getting information from lots of girls like you.

What will happen to you if you are in this study?

Only if you agree, two things will happen:

1. You will need to answer some questions about dysmenorrhoea.
2. You will need to do aerobic exercise as I am teaching you.

Will you get better if you are in this study?

Yes, this study makes you feel better or get well by doing aerobic exercise.

Will everybody come to know about my condition? (Confidentiality)

I will not tell other people that you are in this research and we won't share information about you to anyone who does not work in the research study

Is this bad or dangerous for me? No

Do I get anything for being in the research? No

Will you tell me the results? Yes

Do you have any questions?

You can ask questions any time. You can ask now. You can ask later. You can talk to me or you can talk to someone else.

Do you have to be in this study?

No, you don't. No one will be mad at you if you don't want to do this. If you don't want to be in this study, just tell us. Or if you do want to be in the study, tell us that. And, remember, you can say yes now and change your mind later. It's up to you. *This will not affect in any way your future treatment in this hospital.*

Who can I talk to or ask questions to?

You can talk to your local guardian, own doctor, a family friend, a teacher.

If you don't want to be in this study, just tell us. If you want to be in this study, just tell us. This will not affect in any way your future treatment in this hospital.

I will give you a copy of this form to keep.

SIGNATURE OF PERSON CONDUCTING ASSENT DISCUSSION

I have explained the study to _____(*print name of child here*) in language he/she can understand, and the child has agreed to be in the study.

Signature of Person Conducting Assent Discussion with Date

Name of Person Conducting Assent Discussion:

Part 2: Certificate of Assent

I have read this information (or had the information read to me) I have had my questions answered and know that I can ask questions later if I have them.
I agree to take part in the research.

OR

I do not wish to take part in the research and I have not signed the assent below._____
(initialed by child/minor)

Only if child assents:
Print name of child _____
Signature of child: _____
Date:_____
day/month/year

Name of researcher MS. K. Sindhuja

ANNEXURE IV

SECTION-A

DEMOGRAPHIC DATA:

1. Sample number : _____
2. Age : _____
3. Education : _____
4. Type of family
    a. Nuclear family
    b. Joint family
    c. Extended family
5. Family income :
    a. Below 10,000
    b. 11,000 – 30,000
    c. 31,000 – 50,000
    d. Above 51,000
6. Family history of dysmenorrhoea
    a. Yes
    b. No

    If yes, specify the relationship

    i) Mother
    ii) Sister
    iii) Grand mother

SECTION-B

MENSTRUAL PROFILE OF GIRLS WITH DYSMENORRHOEA:

1. Age at menarche
    a. <12
    b. 12 – 13
    c. 14 – 15
    d. >15
2. Duration of menstrual cycle
    a. 15 – 20
    b. 21 – 28
    c. 29 – 35
3. Number of days of menstruation
    a. <3
    b. 3 – 4
    c. 5 – 6
    d. > 6
4. Characteristics of bleeding
    a. Only blood
    b. Blood with clots
    c. Periodic spotting
    d. Scanty flow
5. Describe the nature of pain during the 1st day of menstruation?

_____

_____

6. Onset of Dysmenorrhea?
    a. First menarche onwards
    b. Within an year after menarche
    c. After one year
    d. After two or more years
    e. Any other, specify _____

7. Day of menstruation with severe pain
    a. One day before the onset of menstruation
    b. On the first day
    c. On the second day
    d. Any other days
8. Do you take adequate rest during dysmenorrhoea?
    a. Yes
    b. No

If yes how many hours do you take rest

i. <6 hours
ii. 6-8 hours
iii. 8-10 hours
iv. >10 hours

9. Do you skip meals during dysmenorrhoea?
    a. Yes
    b. No

    If yes specify

    i. Breakfast
    ii. Lunch
    iii. Dinner
    iv. Any other

SECTION-C

QUESTIONNAIRE FOR ASSESSMENT OF DEGREE OF DYSMENORRHOEA SYMPTOMS

1. Total duration of pain in hours
    a. <1
    b. 1 – 4
    c. 5 – 8
    d. >8
2. Does dysmenorrhoea affect your daily activities
    a) Not at all affected
    b) Mildly affected
    c) Moderately affected
    d) Severely affected
3. Does dysmenorhoea affect your college work or studies?
    a) Not at all affected
    b) Mildly affected
    c) Moderately affected
    d) Severly affected
4. Do you have any other associated physiological symptoms?

PHYSIOLOGICAL SYMPTOMS	**NOT AT ALL**	**MILDLY**	**MODERATELY**	**SEVERLY**
Exhaust, lethargic, tired				
Painful cramps in lower abdomen				
Back ache				
Radiating pain to thighs and lower back				
Nausea				
Vomiting				
Changes in bowel and bladder pattern				

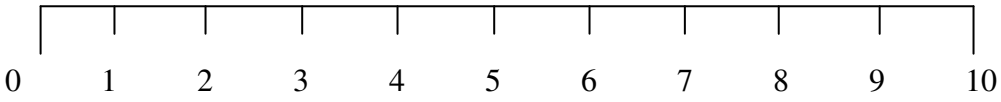
Fainting				
Painful breast				
Abdominal bloating				
Joint pain				
Urinary frequency				
Dizziness				

5. Do you have any other associated psychological symptoms?

PSYCHOLOGICAL SYMPTOMS	**NOT AT ALL**	**MILDLY**	**MODERATELY**	**SEVERLY**
Menstrual migraines				
Depression				
Irritability/easily agitated				
Rapid mood changes				
Poor concentration				
Anxiety				
Insomnia				
Hypersomnia				
Over eating/food craving				
Tension/nervousness				

6. How do you rate your menstrual pain intensity in the numerical pain scale?

Instructions: Please put a circle on this number where the intensity of the pain you suffer.



No pain pain as worse it

SECTION – D

MANAGEMENT OF DYSMENORRHOEA:

1. Have you consulted doctor for dysmenorrhoea?
    a. Yes
    b. No
2. Have you been prescribed medications for dysmenorrhoea
    a. Yes
    b. No

    If yes, mention the name of the drug and frequency _____
3. Do you take medicines without prescription for dysmenorrhoea?
    a. Yes
    b. No

    If yes, mention the name of the drug and frequency _____
4. Measures taken to get relive from abdominal pain (Tick all that apply)
    a. Medicines
    b. Hot application/cold application
    c. Massage
    d. Bed rest
    e. Any other
    f. No measures
5. Do you perform any exercises?
    a. Yes
    b. No

If yes, what type of exercises i) yoga ii) meditation iii) breathing exercise

If yes for how long you will perform

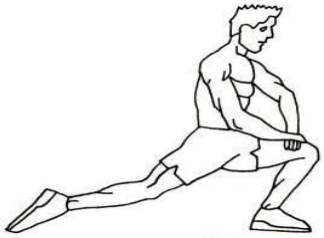
i. <15 min
ii. 15 – 30 min
iii. 30 – 45 min
iv. > 45 min

6. Action taken for dysmenorrhoea during class hours?
    a. Inform class teacher and seek help
    b. Inform friends and get help
    c. Manage the situation by self
    d. Ask permission from teacher and going to hostel
    e. Other measures

ANNEXURE V

STEPS OF AEROBIC EXERCISE

TOTAL DURATION 40 MINUTES

S. NO	EXERCISE	PICTURE
1	Walking (4 minutes)	
2	<u>All stretching exercise 6 minutes</u> Pectorals stretching	
3	Calf and hamstring stretching	
4	Triceps stretching	

5	**Iliopsoas stretching**	
6	**Bicycling (10 minutes)**	
7	**Step-up-down (10 minutes)**	
8	**<u>All strengthening exercise 5 minutes</u>** **Shoulder adduction**	
9	**Shoulder abduction**	

10	**Knee flexion**	
11	**Knee extension**	
12	**Shoulder internal rotator**	
13	**Shoulder external rotator**	
14	**Cool down (5 minutes)**	

ANNEXURE - VI

MASTER CODING SHEET

Demographic & menstrual pofile														chisquare data sheet									
3	2	1	2	2	2	2	2	2	2	3	3	1	1	2	2	1	2	2	0	49	0	0
3	2	1	2	2	2	2	2	1	2	4	2	1	2	2	2	1	2	2	0	47.4	0	0
3	2	1	1	2	2	2	2	1	4	3	2	1	2	2	2	1	1	2	0	48.6	0	0
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